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HYGEIA

THE HEALTH MAGAZINE

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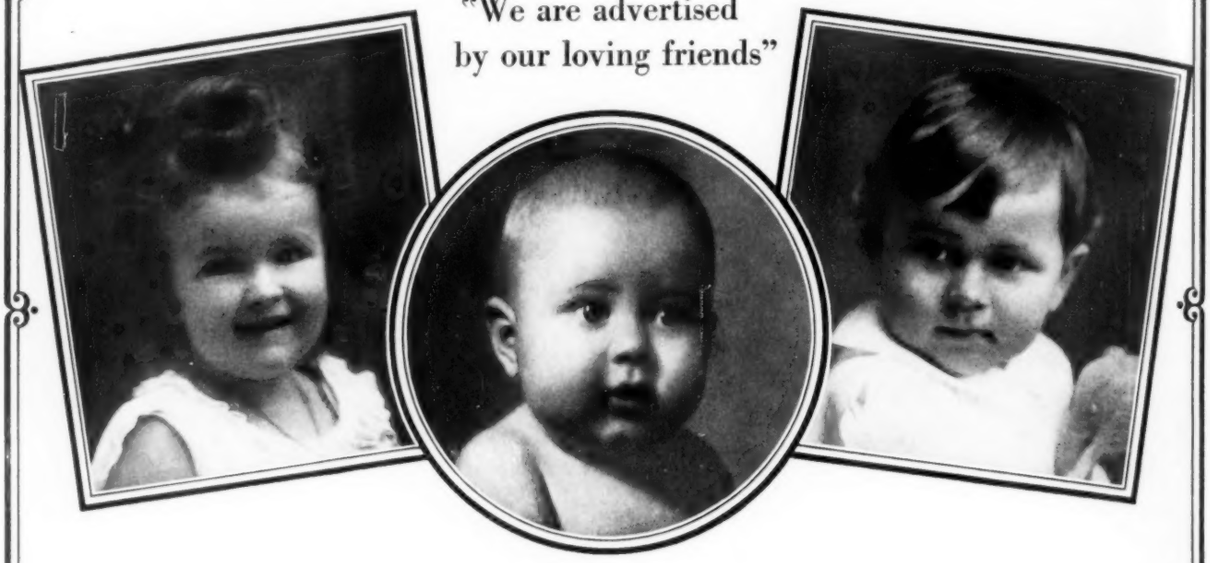

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HYGEIA

THE HEALTH MAGAZINE

Published by the American Medical Association
Edited by Morris Fishbein, M.D.

VOLUME 7 — AUGUST, 1929 — NUMBER 8

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Contributors to This Issue

DR. JOHN O. BOWER, surgeon and professor of clinical research in an eastern university, has devoted a large part of his time for several years to research on the diagnosis of cancer. LOUIS GERSHENFELD is professor of bacteriology and hygiene at the Philadelphia College of Pharmacy and Science. ELON JESSUP, free lance writer and globe trotter, sent his article on camping from Paris, France.

DR. LOUIS LEHRFELD, an eastern eye specialist, writes from the doctor's point of view on the results of playing with dangerous toys. DONALD A. LAIRD, director of the psychological laboratory at Colgate University, is a frequent contributor to HYGEIA.

DR. W. W. BAUER, who recently concluded a series of articles in HYGEIA on the duties of a city health department, is health officer in a midwestern city. MARION BROWNFIELD writes from California of the advantages of home swimming pools. DR. EMANUEL KRIMSKY uses the question and answer method of teaching with good effect in his series of articles on tonsils and adenoids. The third instalment will deal with the perplexing subject of adenoids.

JAMES A. TOBEY, Dr.P.H., who has been writing for HYGEIA for a number of years, has just completed a book on milk, written in collaboration with Dr. Samuel Crumbine. DR. HOWARD W. HAGGARD is the author of HYGEIA'S popular serial for children, "Junior and Mr. Germ," as well as numerous books for their elders, best known of which probably is "What You Should Know about Health and Disease," published in 1927.

DR. B. C. H. HARVEY, professor in the department of anatomy of one of the foremost medical schools of the United States, will continue his lessons in anatomy throughout the present year. CLARA BASSETT, author of "The Girl Who Grew Up Too Soon" in the July issue of HYGEIA, draws her material from her own experience as a psychiatric social worker.

RISPAH GOFF HOWELL has written many health poems for children, several of which appeared in HYGEIA during 1927. HARRIET HASTINGS shows in "The Cloud Party" how she has helped her own children overcome their fear of storms. She has written stories and scenarios and has lectured on story-telling as an aid to character-building.

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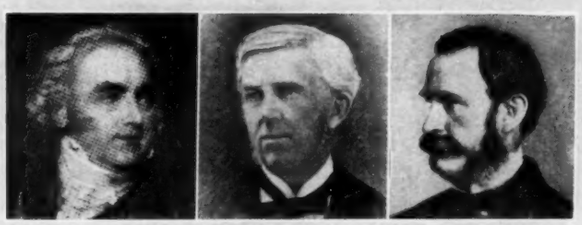


Cooper Holmes Morton

Health Almanac

AUGUST, 1929

1 DEAD IS THE AIR, AND STILL! the leaves of the locust and walnut
Lazily hang from the boughs, inlaying their intricate outlines
Rather on space than the sky—on a tideless expansion of slumber.—Bayard Taylor, "August."

2 TODAY, I THINK that every habit refractory to the action of time must possess some positive advantage for the species. So I have ended by correcting my old opinion.—Cajal, noted Spanish neurologist, philosopher and statesman.

3 THE INDIAN has ever been a man willing to express appreciation in values and also to respect a learning apparently greater than his own, hence he paid his practitioner well and honored him much.
—Brooks, "Medicine of the American Indian."

4 WE LIVE in a split-second world. Ideas go round the planet through the vibrant air in less time than it takes to tell them to another man. In the Middle Ages it was different.—Humanities Research Series, University of Chicago.

5 IT HAS BEEN SUGGESTED that houses may be heated by radio; the slippery medical stuff that now comes from some of the stations would make anybody hot.

6 WILLIAM ALEXANDER ALCOTT, physician and author, who reformed construction of American schoolhouses and did much for American education, was born, August 6, 1798, and died in 1859.

7 A WOMAN WHO HAS PASSED the age of one hundred years attributes her long life to the fact that she never married—but how long has the one hundred years seemed to her.

8 CORNELIUS R. AGNEW, well known ophthalmologist and otolaryngologist, founder of Brooklyn and of Manhattan Eye and Ear Hospitals, was born, August 8, 1830, and died in 1888.

9 ON AUGUST 9, 1819, was born William Thomas Green Morton, instrumental in introducing the use of ether as an anesthetic. He died in 1868.

10 ON AUGUST 10, 1874, was born Herbert Clark Hoover, new president of the United States, who has done much for child health throughout the world.

11 THE HEALTH OFFICIAL DEPENDS on his statistician for the evidence to justify his continued existence, as well as for the material which will enable him, by judicious and pertinent propaganda, to make that existence even happier, and hopefully more useful, than it now is.—Raymond Pearl.

12 IT IS REPORTED that the skirts of girls in Hungary terminate six inches above the knee. According to Gene Morgan that explains the famous line about Cassius having a lean and hungry look.

13 RENÉ THEOPHILE LAENNEC, inventor of the stethoscope, died of tuberculosis, August 13, 1826. He was born February 17, 1781.

14 AS OFTEN HAPPENS in this world, when great leaders are needed they are found at hand. And then it becomes plain that all their previous lives have been just the right preparation for the exalted service they are called upon to render.
—Alfred Worcester.

15 MEDICINE ABSORBS the physician's whole being because it is concerned with the entire human organism.—Goethe.

16 "A COMPLICATED TRAFFIC TANGLE was caused recently," says London Opinion, "by a lady motorist who signaled that she was about to turn to the right and did so."

17 THE BIOLOGIST has shown that what is inherited is composed of genes located in the chromosomes; and he has mapped their positions and determined their modes of transmission from generation to generation.—Alexander Weinstein.

18 IT IS CLEAR that the most elementary condition, if thought is to be free, is the absence of legal penalties for the expression of opinions. No great country has yet reached to this level, although most of them think they have.—Bertrand Russell.

19 WHO REMEMBERS when the hour glass was the proper shape for an adult of the female sex?

20 THE PSYCHOTHERAPIST who claims only one method of successful treatment for every kind of mental illness is as ridiculous as the osteopath who presumes to cure all manner of diseases by manipulation of the spine, or the physician who prescribes digitalis indiscriminately in all affections of the heart.—C. F. Martin.

21 THE PERCEPTION OF THE LUDICROUS is a pledge of sanity. A rogue alive to the ludicrous is still convertible.—Ralph Waldo Emerson.

22 ABE MARTIN SAID: "Another argyment 'gainst corsets is that a gypsy woman died at th' age o' 102 years at Meadville, Pa., last week."

23 SIR ASTLEY PASTOR COOPER, noted English surgeon and anatomist, was born, August 23, 1768, and died in 1841.

24 SOME WOMEN ARE BORN GULLIBLE, most women become gullible, and practically every woman is willing to pay two dollars for a dime's worth of cold cream if it is put up in a three cornered box with a brass lid and smells good.

25 IN 1916 S. E. KISER SAID that fame awaits the first baby to be born in an airplane and the prize has not yet been claimed.

26 ON AUGUST 26, 1743, was born Antoine L. Lavoisier, noted for masterful studies of the physiology of respiration and of metabolism.

27 ON AUGUST 27, 1900, James Carroll allowed himself to be bitten by mosquitoes that had fed on patients with yellow fever. On August 31 he developed the disease.

28 ON AUGUST 28, 1749, Johann Wolfgang von Goethe, one of the most learned men the world has ever known, was born in Prussia. He wrote much of philosophy, of psychology and of medicine.

29 OLIVER WENDELL HOLMES, noted poet, essayist and physician, who did much to prevent childbed fever in women, was born, August 29, 1809, and died in 1894.

30 HYPOCHONDRIASIS is the thing that makes a woman have shooting pains so bad she cannot wash the dishes the morning after the night she has sat up until one o'clock playing bridge.

31 AN AUTO RATTLING in the dust,
A Palm Beach suit that's badly mussed,
A drain pipe filling up with rust,
A breeze that hardly makes a gust,
That's August.

The MODERN TREATMENT of Cancer

By John O. Bower

CANCER is being treated more successfully today than in the past, not only because of more complete surgical operations and better equipment in the form of x-rays, radium and various electrical devices but also because of the realization that the management of the cancer patient is dependent upon the individual resistance and reaction to treatment. The treatment cannot be uniform because every patient reacts differently.

One can help physicians treat the disease successfully by seeking medical advice early; one should not be afraid to find out what that lump is. Reliable statistics show that nine out of ten patients who think they have cancer do not have it.

THE relationship between patient and physician has changed markedly in the past decade or two. In the past the family physician when called in to see a patient could examine, prescribe and leave the patient with a word or two relative to her condition or comment briefly on the outcome to the family. Now the physician must not only examine, prescribe and attempt to foretell the outcome but he must state the cause, describe the course of the disease, mention the possible complications and at times describe the action of drugs or outline the rationale of treatment.

This is as it should be. In keeping with the increase of knowledge of the physician is the increase in knowledge of men and women. Dignified reticence will no longer cover a lack of knowledge regarding a patient's true condition.

The high school graduates of today know almost as much about the physiologic processes of the body as our graduates of medicine did twenty-five years ago. This effacing of the mysteries of medicine by a universal enlightenment has benefited the public and strengthened the confidence of the patient in the physician. With one or two exceptions the foregoing is true of all diseases. One of the outstanding exceptions is cancer.

The cause of cancer is not known. All medical men and the majority of lay men and women know this. It is also generally known that advances in the treatment of disease have been preceded by the discovery of the cause or of facts relating to its development. This explains why our position with the public has not been strengthened with regard to cancer. We have been on the defensive; the management of the disease has been questioned because our methods of treatment have not been uniform. This is unfortunate, because modern methods have increased the percentage of cures.

The tendency among those who use modern methods is to treat cancer as an infection despite the fact that it has not been proved to be caused by a germ. It is not the purpose of this talk to enter into detail regarding the arguments in favor of this procedure. An attempt will be made, however, to compare the management of cancer with the method used in the management of common infections.

Let us, for example, take the most frequent infection that affects the average man of today —an infection of a hair root on the back of the neck. The germ enters through a break in the skin usually caused by the rubbing of the collar. It results in the formation of a drop of pus in the center of which is a solitary hair.

The proper method of treatment is to apply iodine or mercurochrome and pull out the hair. Now the improper method is to let the hair remain, to disregard the use of antiseptics and to squeeze it, all of which may result in the development of a boil or carbuncle or even in a general infection and death. Further, let us consider the most common infection in women —an infection of the neck of the womb, a cervicitis. This not infrequently follows an injury of childbirth or it may be due to an excoriation followed by an infection. In either instance if properly treated the disease remains local; if improperly treated it may result seriously.

Now what analogy is there between the acute infection just described and the management of cancer? In the case of infection of the hair root, we have not mentioned the most important part of the management, which is prophylaxis—the prevention of infection by preventing a break in the skin, the using of soft collars, cleanliness, and the patronizing of a careful barber.

Ways to Avoid Cancer

In cancer prevention the same prophylaxis holds good—prevention of irritation in order that the defensive covering of the body, the skin or mucous membrane, may be kept normal and intact. One should avoid jagged teeth, irritating artificial dentures, pyorrhea, root abscesses, excessive irritation from nicotine and ill fitting glasses. Women should prevent infection by having wounds caused by childbirth repaired or infections, previously acquired, cured.

Thus the prophylaxis of infections and cancer is the same and the treatment differs but little. We do not squeeze or irritate growths no matter where they may be situated or how large or small they may be. An antiseptic is applied and they are removed just the same as we remove the hair. If we squeeze or irritate them they spread just as an infection spreads and they cause death in the same way. In the treatment of women, the unhealthy tissue in the infected area in which cancer may develop is removed. This tissue is examined under the microscope to determine its character just as we examine pus to determine the character of the infection.

There are many things that infections and cancer have in common in addition to those mentioned. In acute tonsillitis, for instance, the lymphatic glands of the neck become enlarged; acting as filters, they prevent germs from entering the main lymph streams and spreading throughout the body. The glands are usually large and tender and if the patient's resistance is normal the disorder disappears quickly, usually within a few days.

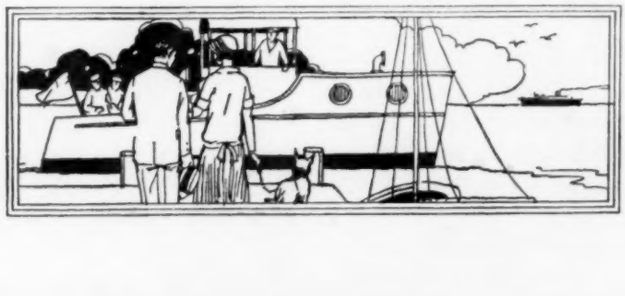
There are cases in which the infection in the tonsil is not so severe, a subacute type in which the lymph glands become enlarged more slowly and are usually smaller, harder and less tender. Then there is the third type, in which the infection in the tonsil is chronic. Here the lymphatics cannot be felt; when they can, they are small, hard and painless.

Three Types of Cancer

Cancers correspond closely to these three types of tonsillitis—acute, subacute and chronic. The acute cancer acts quickly. It is so active at times that the skin overlying the growth may become red; the lymphatic glands enlarge rapidly and the patient appears to be and is very sick. The treatment of this type of cancer is similar to the treatment of the glandular enlargement associated with acute tonsillitis. Operation is not indicated; no sane surgeon would operate on these glands, for surgery would destroy nature's barrier against invasion. If the patient suffering with acute cancer is to be cured, his resistance must be preserved and enhanced if possible. Physicians attempt to do this by irradiation, the application of x-rays or radium to the growth and to its glandular extensions.

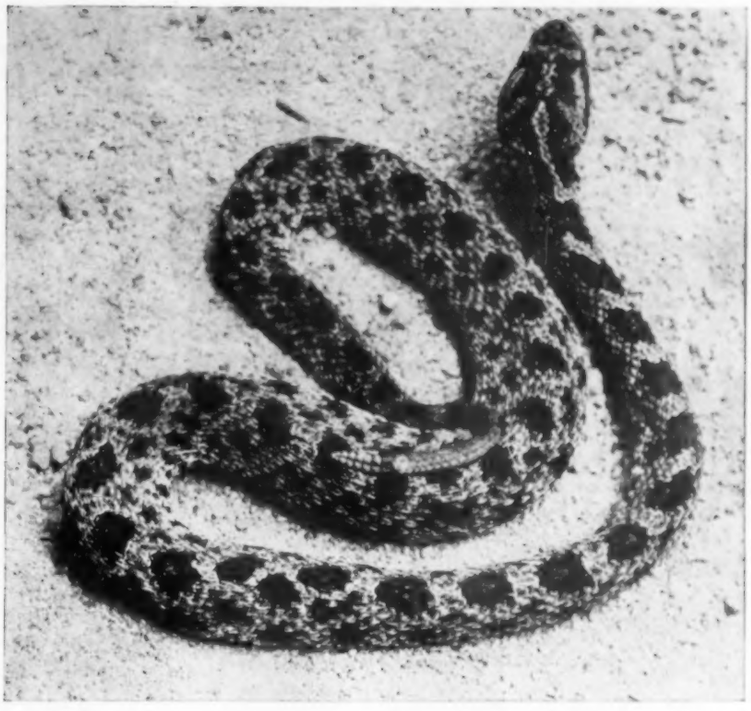
In subacute cancer as in subacute infections, the process is less active, usually because the patient's resistance is better, and the glands may not be affected. In these cases, as in acute infections, the patient's resistance determines the character of treatment—operation followed by irradiation or operation preceded by and followed by irradiation. In some instances it is advantageous to imbed radium at the time of operation.

In chronic cases, removal by operation or destruction of the growth by other methods is the proper treatment. X-ray, radium or electricity are uniformly satisfactory. This applies of course to accessible growths; growths within the abdomen or chest are usually operated upon.



Fighting *an Old and Deadly* Enemy

By Louis Gershenfeld



The pigmy, or ground, rattler has a tiny rattle. It is found in the southeastern part of the United States.

POISONOUS snakes are one of man's oldest and deadliest enemies. We have progressively exterminated or tamed wild beasts, destroyed insect pests and other menaces to human life, but this native species of death-producing wild creature has been allowed to take its death toll without any concerted effort on our part to stop its propagation, to obtain remedies to neutralize its poisons or to take effective steps to stamp it out. Only recently has the warfare, assisted by modern scientific methods, gained momentum.

Nonpoisonous Snakes Should Be Protected

It would be best for those who live in rural districts to familiarize themselves with the methods of differentiation between the species of poisonous and valuable nonpoisonous snakes and to see that the measures employed in eradication are directed only against the former and not against the latter. Mice and rats, gophers, ground squirrels, moles, opossums, chipmunks and young rabbits, which destroy crops, are attacked by many snakes. Even on golf courses snakes are valuable as destroyers of the moles that disfigure the greens.

The venomous snakes play the most important rôle in the relation of reptiles to man and to the higher animals. In some instances and in particular in tropical and semitropical countries the problem of ridding the environment of poisonous snakes is highly important. Even in our own country we must be prepared to cope with these creatures. Poisonous snakes are to be found in mountainous and swampy areas, on farms and in sparsely populated districts, and in many instances, as a result of the facilities of travel, they may be found at our door.

Excluding the sea snakes, which are merely water cobras and are all venomous, there are about 250 species of snakes that have a well developed poison apparatus. About one third of this number may be disregarded because of their small size or rarity, leaving the remainder as the total number of poisonous species that are of concern to human beings and to the higher animals.

Accurate statistics are not available from most of the countries infested. The regions in which the most fatalities occur are, in the order of the greatest losses, India, southern Brazil and Australia. In Central America and in North America there are more casualties than there used to be, and only recently campaigns have been started that promise to result in a marked reduction of poisonous snakes and in the saving of many human lives. The loss of live stock and the higher animals can only be guessed at, as no reliable statistics are available, but there is no doubt that this economic loss runs into the millions of dollars annually.

North America Has Nineteen Poisonous Snakes

From a scientific standpoint all snakes are regarded as poisonous if they yield venom that is capable of producing some toxic action in the body tissues of human beings and animals. However, some of these apparently poisonous reptiles are not as dangerous as they appear, because of the fact that though they secrete venom they only rarely attack man, and when they do they are unable to inject the poison

deep enough into the tissues to exert any serious effects.

There are nineteen species of poisonous snakes in North America and they are included in two groups. One is the proteroglyphs (front-fanged snakes with grooved teeth), a section of the *Colubridae,* and the other is the solenoglyphs (at the highest stage in the evolution of the poisonous fang and with maxillary teeth that embrace a longitudinal tubular duct) comprising mainly the pit vipers found in the subfamily *Crotalinae,* family *Viperidae.*

The proteroglyphs include the two subfamilies, the poisonous sea snakes (*Hydrophinae*) and the elapine snakes (*Elapinae*). The elapine snakes include the cobras and their allies and the coral snakes. There are no cobras or cobra-like snakes in North America, but the closely related coral snakes are to be found in this hemisphere. Of the many species of coral snakes only two are found in this country.

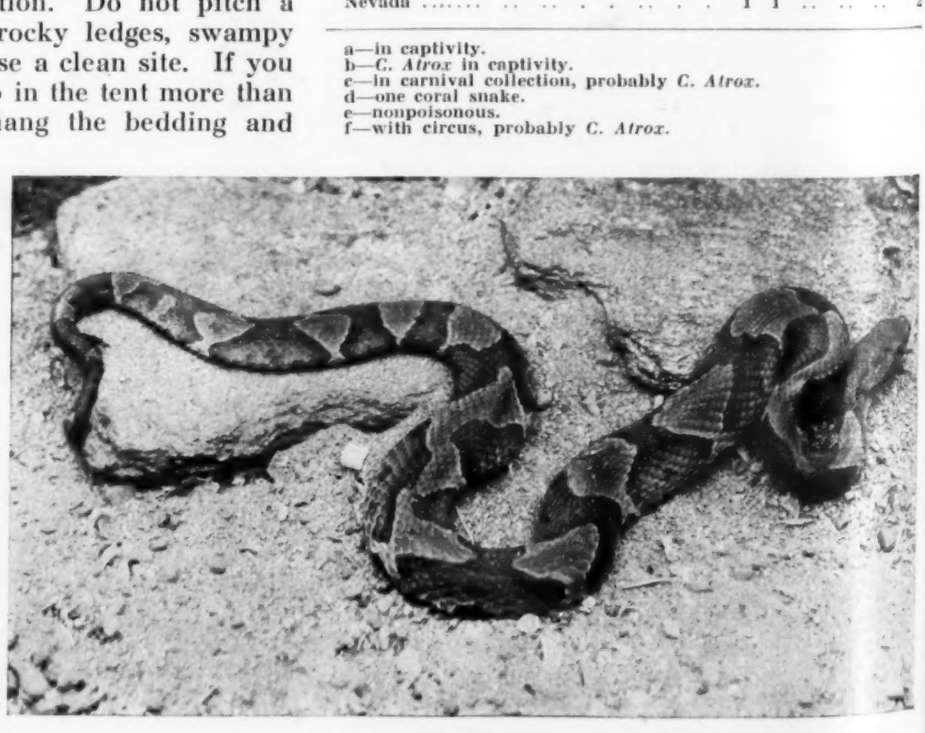
In the United States proper, practically every state is inhabited by venomous snakes with the probable exception of Maine and New Hampshire. It is interesting to note that in the northern states, though poisonous snakes are plentiful, they do not seem to be so vicious.

When hunting, hiking, fishing or working in fields or plantations, observe where you walk and where you put your hands. If you are visiting areas in which poisonous snakes are known to abound, protect your hands with gloves and wear leather leggings or, better still, rubber boots especially constructed with a shank and several layers of canvas. Frequently a pair of leather puttees in addition to the shoes will be sufficient protection. Do not pitch a tent in the vicinity of rocky ledges, swampy areas or tall grass, but use a clean site. If you find that you are to sleep in the tent more than one night, arrange to hang the bedding and

Cases of Snake-Bite During 1928 in United States as Reported to the Antivenin Institute of America.

	Copperhead	Cotton-Mouth Moccasin	Massasauga	*Crotalus horridus*	*C. confluentus*	Ground or Pigmy Rattler	*C. adamanteus*	*C. oreganus*	*C. cerastes*	*C. atrox*	Rattler Species	Undetermined Species	Total
North Atlantic and Central States:													
Vermont	..	..	.	1	..	.	.	..	.	..	..	..	1
Connecticut	..	..	.	3	..	.	.	..	.	..	..	..	3
New York	5	..	1	.	..	.	.	..	.	..	..	1	7
Pennsylvania	26	..	.	7	..	.	.	..	.	..	..	8	41
New Jersey	3	..	.	.	..	.	.	..	.	..	..	4	7
Delaware	1	..	.	.	..	.	.	..	.	..	..	..	1
Maryland	7	..	.	.	..	.	.	..	.	..	..	1	8
Ohio	9	..	.	1	..	.	.	..	.	..	..	..	10
Michigan	..	2a	1	2	..	.	.	..	.	..	..	1	6
Illinois	2	1	.	.	..	.	.	..	.	..	..	..	3
Minnesota	..	..	.	.	1	.	.	..	.	..	..	1b	2
Iowa	..	..	.	.	1	.	.	..	.	..	..	..	1
Wisconsin	..	..	.	.	..	.	.	..	.	..	..	1	1
Southeastern and Gulf States:													
Virginia	17	..	.	3	..	.	.	..	.	..	..	4	24
West Virginia	14	..	.	.	..	.	.	..	.	..	..	1	15
Kentucky	2	..	.	.	..	.	.	..	.	..	1c	..	3
North Carolina	9	1	.	7	..	.	.	..	.	..	4	2	23
South Carolina	5	..	.	4	..	.	1	..	.	..	1	..	11
Georgia	3	4	.	3	..	1	2	..	.	..	9	9	31
Florida	..	7	.	1	..	7	8	..	.	..	2	3	28
Alabama	11	12	.	1	..	4	.	..	.	..	16	3	47
Mississippi	2	3	.	1	..	3	1	..	.	..	..	7d	17
Missouri	6	1	.	.	..	.	.	..	.	..	..	1e	8
Arkansas	5	1	.	3	..	1	.	..	.	..	4	3	17
Louisiana	..	6	.	.	..	.	.	..	.	..	3	5d	14
Tennessee	4	..	.	2	..	1	.	..	.	..	..	1	8
Western and Southwestern States:													
Montana	..	..	.	.	7	.	.	..	.	..	..	..	7
North Dakota	..	..	.	.	..	.	.	..	.	..	..	1f	1
South Dakota	..	..	.	.	5	.	.	..	.	..	..	..	5
Wyoming	..	..	.	.	3	.	.	..	.	..	..	1	4
Nebraska	..	..	.	.	5	.	.	..	.	..	..	..	5
Colorado	..	..	.	.	10	.	.	..	.	..	..	..	10
Kansas	1	..	.	.	5	.	.	..	.	..	1	..	7
Oklahoma	3	..	.	.	..	.	.	..	.	2	..	..	5
Texas	33	5	.	2	1	1	.	..	.	89	14	16	161
New Mexico	..	..	.	.	1	.	.	..	.	4	7	2	14
Pacific Coast and Rocky Mountain States:													
Arizona	..	..	.	.	..	.	.	..	4	1	6	..	11
California	..	..	.	.	..	.	.	24	.	1	5	..	30
Oregon	..	..	.	.	..	.	.	1	.	.	..	..	1
Washington	..	..	.	.	..	.	.	1	.	..	..	..	1
Nevada	..	..	.	.	..	.	.	1	1	..	..	..	2

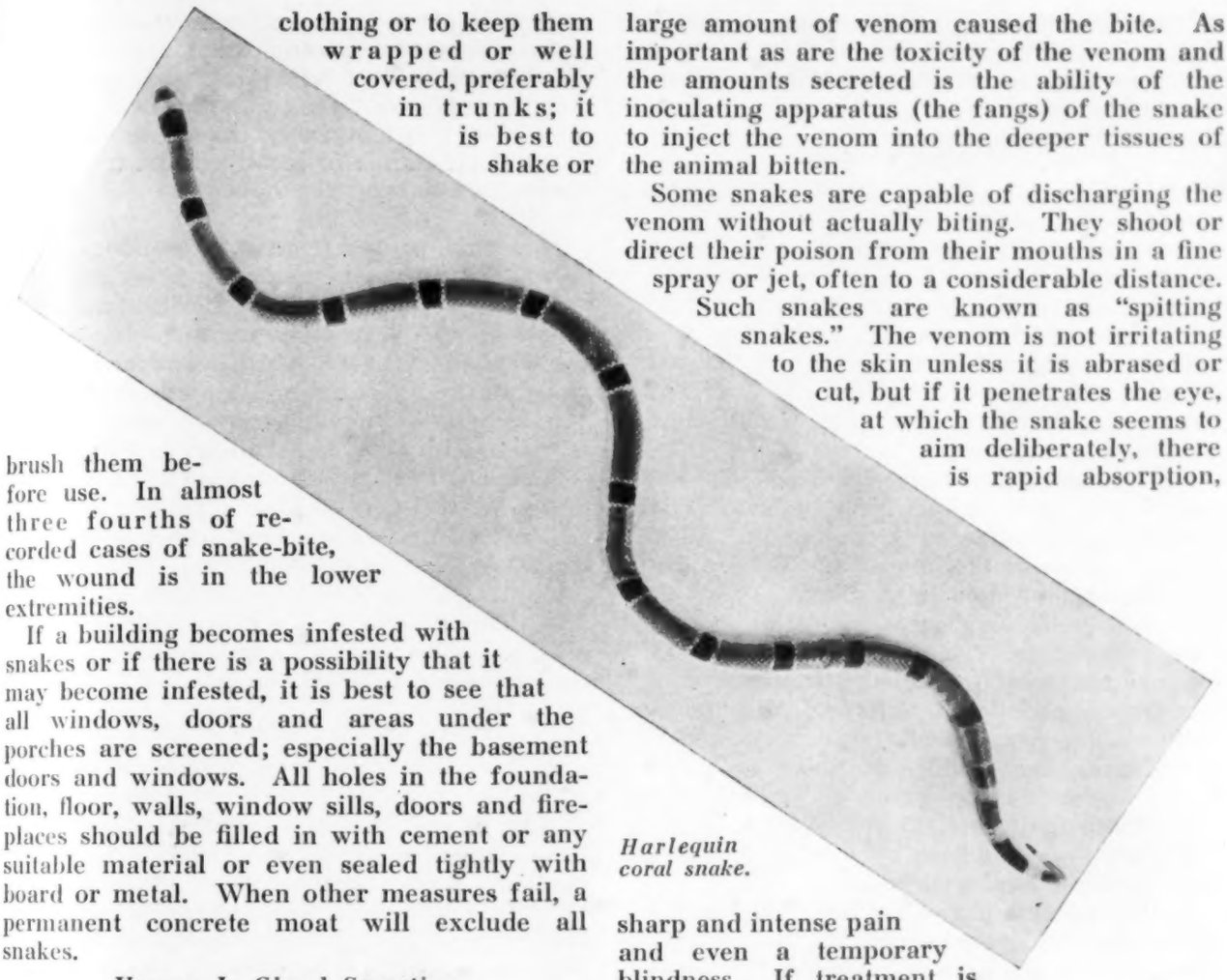
a—in captivity.
b—*C. Atrox* in captivity.
c—in carnival collection, probably *C. Atrox.*
d—one coral snake.
e—nonpoisonous.
f—with circus, probably *C. Atrox.*



A beautifully colored pit viper is the copperhead snake, or Agkistrodon mokasen. It is highly poisonous and is found in the eastern and central portions of this country and sometimes in Texas and other southern areas. It strikes only when cornered.

clothing or to keep them wrapped or well covered, preferably in trunks; it is best to shake or brush them before use. In almost three fourths of recorded cases of snake-bite, the wound is in the lower extremities.

If a building becomes infested with snakes or if there is a possibility that it may become infested, it is best to see that all windows, doors and areas under the porches are screened; especially the basement doors and windows. All holes in the foundation, floor, walls, window sills, doors and fireplaces should be filled in with cement or any suitable material or even sealed tightly with board or metal. When other measures fail, a permanent concrete moat will exclude all snakes.



Harlequin coral snake.

Venom Is Gland Secretion

Snake venom is a secretion derived from the supralabial gland. The gland is present on each side of the snake's head beyond the eye and above the lip margin and resembles in its development the parotid salivary gland in mammals. The amount of venom secreted varies with each species and, generally speaking, is in proportion to the size and age of the snake, the length of the period of hibernation, fasting, repose and other environmental factors. Larger and older specimens secrete larger amounts of venom.

The venom from the different groups of poisonous snakes varies in toxicity as well as in therapeutic action. The amount of poison injected, in relation to the size of the animal, and the degree of its virulence, which varies not only in the different kinds of snakes but in the same snake under different conditions, govern the seriousness of the symptoms. In a wound made by a poisonous snake, the distance between the two punctures made by the fangs frequently bears a relationship to the amount of venom injected. If the fang puncture points are far apart it is more than likely that a large snake and one capable of throwing forth a large amount of venom caused the bite. As important as are the toxicity of the venom and the amounts secreted is the ability of the inoculating apparatus (the fangs) of the snake to inject the venom into the deeper tissues of the animal bitten.

Some snakes are capable of discharging the venom without actually biting. They shoot or direct their poison from their mouths in a fine spray or jet, often to a considerable distance. Such snakes are known as "spitting snakes." The venom is not irritating to the skin unless it is abrased or cut, but if it penetrates the eye, at which the snake seems to aim deliberately, there is rapid absorption, sharp and intense pain and even a temporary blindness. If treatment is applied immediately the inflammation of the conjunctiva subsides in a few days. Scientists generally wear goggles when handling these snakes in captivity.

What to Do When Bitten

1. When bitten by a snake, if possible kill or catch the snake that did the biting; if this is impossible, a careful or casual description of the snake may aid in the identification of the species. Knowledge of the fauna and especially of the varieties of poisonous snakes likely to be present in the locality is of great importance.

Just as it is necessary to capture a dog when bitten in order to find out if the animal has rabies, so one should attempt to find out whether the snake that did the biting is poisonous or nonpoisonous. In the case of the snake, identification is much easier than in the case of rabid animals. Such identification will enable one to avoid discomfort and even death. If the snake is of a nonpoisonous species then no treatment is necessary other than the local application of iodine or similar disinfectant.

If the snake is poisonous, it may be necessary to identify the particular species. Specific antivenins (antivenomic serums) are necessary in

the treatment of bites by venomous snakes. Antivenin for cobra venom is useful for the treatment of bites of cobra but not for the bites of other snakes.

A Polyvalent Antivenin

The latest tendency is to prepare a polyvalent antivenin (one made from the venoms of different species of snakes) that will counteract the effects of all venoms from poisonous reptiles. It seems impractical or impossible to prepare a polyvalent antivenin specific for venoms of all poisonous serpents in the world, but a polyvalent antivenin specific for most of the poisonous reptiles in a given locality is possible and is available.

An antivenin to counteract the effects of all poisonous snakes in Brazil is produced by the Brazilian government at the Seropathic Institute of Butantan near the city of São Paulo, Brazil. Dr. Amaral, through the Antivenin Institute of America, with headquarters in Philadelphia, has produced polyvalent antivenin that is effective against the venoms of the principal poisonous serpents of the *Crotalidae*. This includes rattlesnakes, copperheads and moccasins (all pit vipers), the important poisonous snakes found in the nearctic region of North America, comprising Central Mexico, United States and Canada. Persons bitten by coral snakes would have to resort to other treatment.

If the snake is poisonous, there is the possibility that the venom did not penetrate the circulation or, as in some instances, there is the possibility that the poison glands are not functioning and venom cannot be secreted. In most cases, the presence of venom causes almost instant pain, swelling and discoloration; the chances are that if these symptoms are absent, the person was bitten by a nonpoisonous snake. As a precautionary measure in areas in which pit vipers prevail, a person bitten can take an injection of North American antisnakebite serum. This will not cause any outward effects even though venoms from pit vipers are not present in the system.

The rattlesnake, Crotalus atrox, in a position for striking.

Every naturalist, sportsman, tourist, engineer and workman venturing into regions known to contain venomous pit vipers should carry along with them first aid treatment for bites by these poisonous snakes. The drug store or general store in small communities and all camps in localities in which these snakes abound should have first aid kits in stock.

These kits should contain the following articles: Two packages of North American antisnake-bite serum, containing sterile syringe and sterile needle; several stout rubber bands or a rubber ligature; a sharp knife, scalpel or razor, a few sterile bandages and a package of sterile gauze; a small breast pump or other suction device, and tincture of iodine or other antiseptic. Dr. Dudley Jackson and Colonel Crimmins in their campaign against poisonous snakes in Texas have been using effectively the Dudley kit, which contains small rubber bulbs, a unique suction type of apparatus. A first aid outfit should be kept in a place where it can be obtained quickly, as promptness is essential in the beginning of the treatment.

Place Ligature Above the Bite

2. Place a ligature or tourniquet, preferably a rubber band, above the bite (between the bite and the heart). Don't lose time, but apply this promptly as soon as bitten, even if a strip of cloth torn from a garment has to be used instead of a rubber band. Twisting a stick into the rubber band or ligature will tighten it. The ligature should be released for a few seconds at five or ten minute intervals to maintain the necessary circulation and to prevent gangrene from setting in. This will prevent or at least delay to a great extent the systemic absorption of a deadly dose of venom from the amount present in the tissues immediately surrounding the wound. Above all, keep your head. Don't get despondent or excited, but act promptly and systematically.

3. If you are in reach of medical or scientific aid, call a doctor or a scientist who knows how to treat snake-bite wounds. If the doctor cannot be reached, then get the proper serum and inject it your-

self. If you do not have antivenin with you, arrangements should be made at once to procure some. Telegraph and use the aeroplane, if necessary. The early judicious use of the proper antivenin is the best remedy available today in the treatment of snake bites.

If you have to give the injection yourself follow the directions given on the label or circular. As the injection is about to be given, remove the ligature. If the antivenin is administered within a few minutes after you are bitten, a ligature should not be used, as it is necessary for the antivenin to circulate freely throughout the blood stream.

The cotton-mouth moccasin, an ugly, pugnacious and irritable semiaquatic snake. It is found mainly in the swampy areas of the southeastern portion of the United States.

4. Squeeze the wound to make the blood flow freely. This may carry away some of the poison. Incisions into and about the fang punctures so as to enlarge and make them deeper are still done by some, but most workers today claim that there is no particular advantage in doing this. Suction may be applied. It may prove to be of some value. Incision and suction are not necessary if antivenin is used early. In fact, if antivenin is available, incision is to be condemned, as there is a greater possibility of infection setting in when the skin is cut.

5. Don't pack the wound with crystals of potassium permanganate; don't apply poultices or alum or parts of the body of snakes or other animals. Don't pour coal oil or whisky on the wound. Don't take alcohol or ammonia.

Keep warm. Local treatment should be used by the doctor, for it is of the greatest importance, such as epsom salt or sodium citrate dressings for inflammation and novocain injections to alleviate pain. Coffee and the use of strychnine should be avoided, but they may be used if symptoms of weakness or giddiness develop or if the fangs may have struck an artery so that the venom was injected directly into the blood vessel.

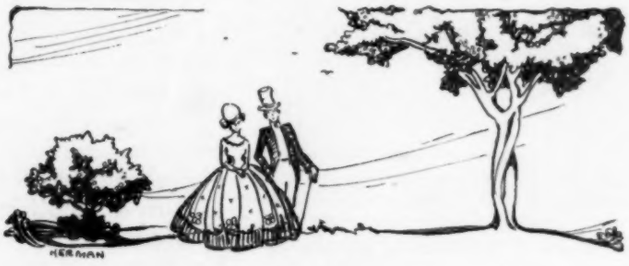
6. There is always a possibility that a wound made by the bite of a snake may become infected. It is therefore advisable to apply an antiseptic or an antiseptic dressing to the wound, even though the individual bitten survives the primary effect of snake poisoning.

Almost all remedies other than those mentioned are valueless or even harmful and their employment is to be condemned.

The use of alcohol internally is to be condemned as it is undoubtedly harmful. Alcohol stimulates heart action, thus helping absorption, and it lowers the blood pressure, which is just what is not desired. In addition to the delay of the absorption of the poison, it is desirable to maintain at all times a high blood pressure.

There still prevail many stories about a drink of whisky having saved the life of a person bitten by a snake; but if an investigation is made it will be found that in practically all of these so-called cures by alcohol the biting was performed by a harmless snake.

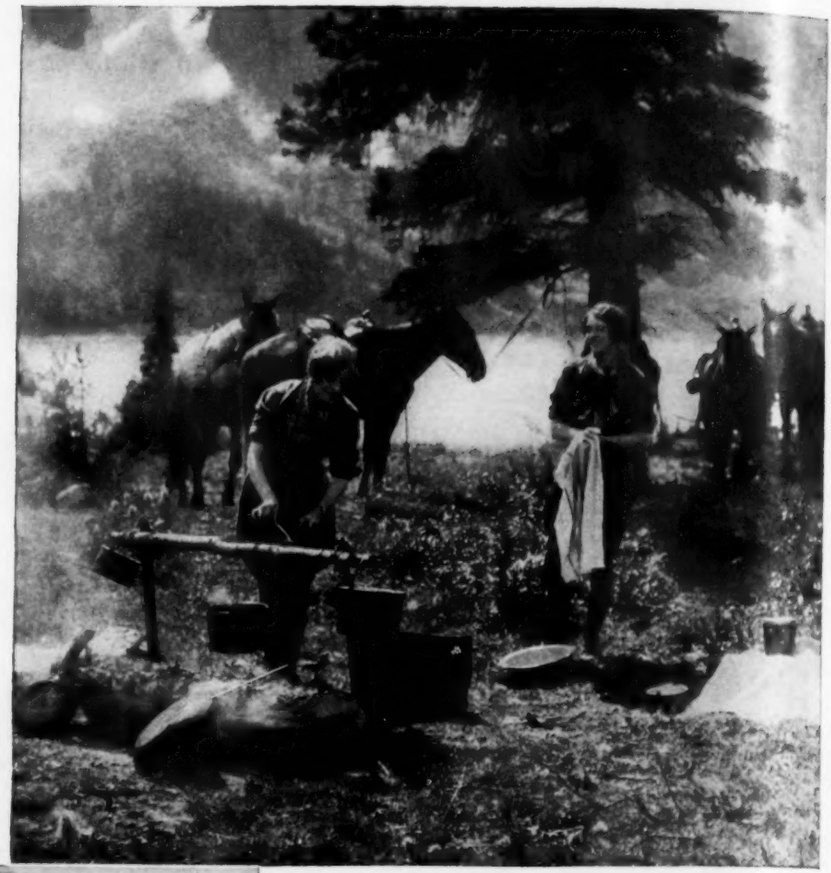
Those familiar with the after-effects of snakebite poisoning appreciate the miraculous effect obtained by the use of antivenin, in that recovery is not only swift but is unaccompanied by local symptoms or discolorations.

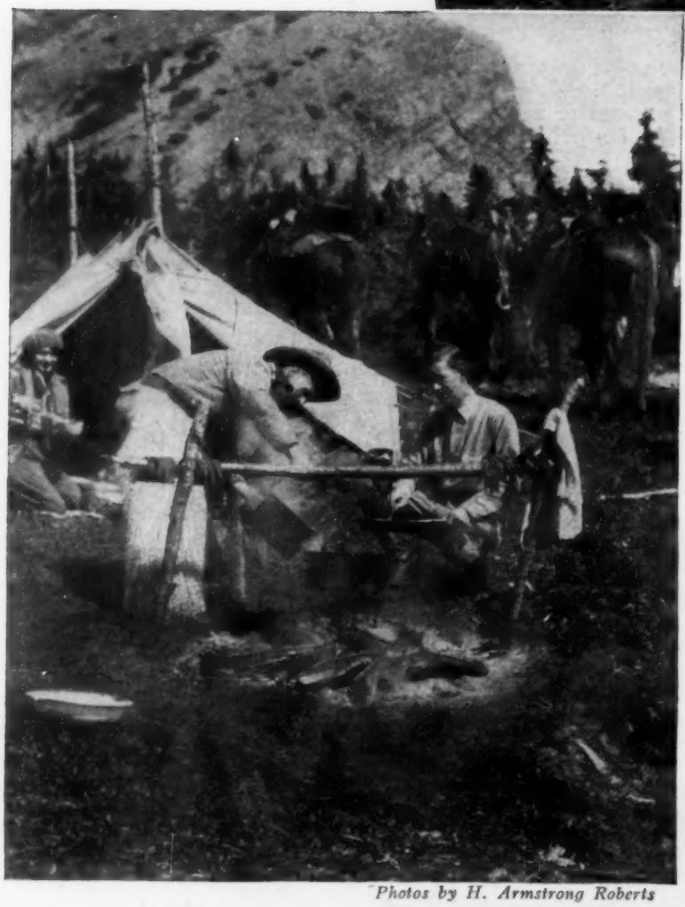


Camp Cookery

By

Elon Jessup





Photos by H. Armstrong Roberts

The camper can treat his stomach as well in the woods as he does at home.

BACON, beans, cornmeal, salt pork and coffee, with a frying pan rampant—these are the backwoods trapper's idea of a well-balanced diet. He is half starved most of the time without knowing what ails him. I've met many of these old timers following trails of fur or of gold. Their "spepsy" is a favored topic of conversation. Even in appearance they are rarely the romantic figures that popular fiction and movies have led us to expect. More often they are listless and emaciated. How they manage to survive and to work like horses remains one of the mysteries of human endurance.

There is thought in this for the vacation camper who fancies himself living a woodsman's life. To get out of doors, to go camping, to revert to Nature is good for body and soul. By all means let us revert to Nature. But Nature never intended us to live on a lopsided diet and poorly cooked food, as any one who systematically keeps at it will discover to his internal discomfort. He will also discover that there is no easier way to ruin a vacation.

A curious psychology goes with food. Environment seems to be a ruling factor.

Hence, the quick lunch of the business man in a hurry. He knows that he should not do it, but he does. Every intelligent person these days knows the fundamental principles of wisdom in diet. So well has science taught us the rules that the thing has become almost instinctive. The average home diet is of high standard.

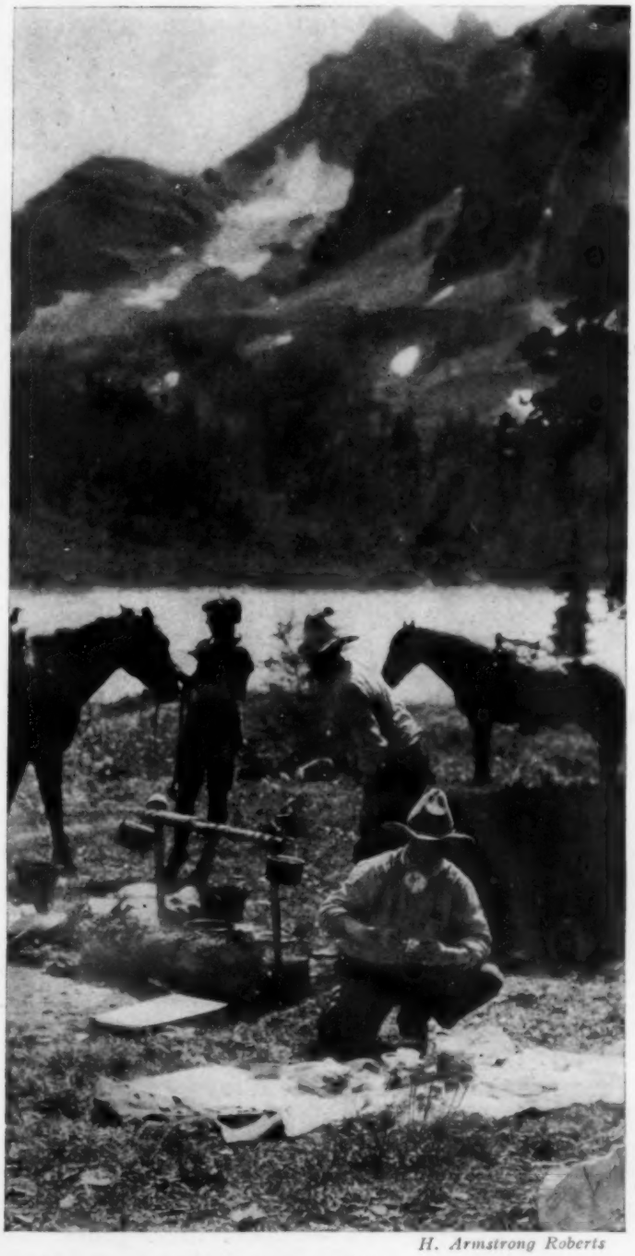
If we compare the typical menu of an average city home and that of a backwoods cabin, we should say (and rightly too) that there is just about a century of difference. Yet, there are city folk who go camping imbued with the idea that they must revert to backwoods standards. Environment and tradition change rules that in the city we accept as ordinary common sense.

As has been previously suggested, the woodsman's way in dietary matters is not half as romantic as it is sometimes pictured. Furthermore, the chief reason for the woodsman's way is commonly overlooked—the physical difficulty of getting and transporting food in the far-off places. His complete larder is subjected to three tests, and any food that fails to meet these is banned. These tests are: Will it keep? Can you carry it? And will it stick to your ribs? These do not permit fresh food much of a look-in.

Occasional vacation campers through force of circumstances have to abide pretty closely by the foregoing rules. For example, a lengthy canoe cruise through northern Minnesota and the Canadian wilderness means hard work and difficulty in replenishing the larder. One takes foods that will keep, do not weigh much and will stick to the ribs. Even so one will find it no added burden and much better for the health to go in for variety, remembering always the important parts that fruits and vegetables play in well-balanced diet. Dried fruits and dehydrated vegetables are easily carried.

Nine tenths of present day vacation camping is not wilderness camping at all. Any necessity there may have been for living on a lopsided diet has in great part ceased to exist. Transportation has completely changed the map of North America. The so-called trackless wilderness is threaded with highways. The average camper is more or less constantly in contact with food markets. He can treat his stomach as well in the woods as he does at home.

Yet in spite of the privilege of being able to pick and choose, many campers cling to the old wilderness tradition of scant variety in foods. With this often goes a touch of the quick-lunch habit, the impulse to rush a meal on and off the fire in a hurry and get at it. Hence the record consumption of canned food. I have met legions of motor campers, constantly in touch with fresh food supplies, who lived almost exclusively on canned stuff. Of course, some very good food comes in cans. But one's common sense would not permit one to live exclusively on canned stuff at home. So why, upon the road?



H. Armstrong Roberts

The summer camper should not get the frying pan habit.

Lack of fresh food and lack of variety are reasons why campers often fail to derive as much benefit from their vacations as they might. The manner in which the food is cooked is another reason. Here again romance, bolstered by a touch of the quick-lunch habit, comes upon the scene.

What particular cooking utensil is associated most closely with camping? The answer is the frying pan. Tradition stalks so strong in the form of the frying pan that an artist would not dare draw a picture of

Ewing Galloway

Portable gasoline stoves are a great boon to motor campers. With such an outfit the camper can cook each food as it should be cooked.

a camp fire without giving that utensil a prominent place. The tragic part of it is, he is perfectly right.

A backwoodsman would probably starve to death if his frying pan were taken away from him. His inordinate affection for and dependence upon this implement is pitiful. It is also the reason in great part why some of the worst cooked and most indigestible meals ever eaten have been cooked by backwoodsmen. There's a romantic idea prevalent that the mere act of cooking a meal outdoors makes it appetizing and wholesome. Such is not always the case, as we have seen.

The frying pan habit is an easy habit to fall into when one goes camping. One reason for this is the convenience of this utensil and the speed with which it performs its required job. Another reason is that fried food, properly cooked, is peculiarly tasty to a person living an outdoor life. Fresh, brisk air tends to give one a craving for fats, and food cooked in grease satisfies this. No one, however, can subsist long upon a steady diet of grease without suffering the consequences. Backwoods peoples complaining of their "spepsy" serve as the best evidence of this.

The frying pan, of course, can be a valuable utensil. Wholesome stews can be cooked in it as well. Even of fried food, a temperate amount does no harm. But the summer camper should not get the frying pan habit.

One should go in for variety in cooking methods as well as for variety in food. In this connection it might be said that some of the really primitive methods of woods cookery are cookery at its best. An example is the broiling of meat or fish on green sticks over a glowing heap of hot wood coals. It is the real thing; so real in fact that every modern kitchen range is built on the same principle.

In their original forms, some of these fine old methods of woods cookery seem on the way to becoming a lost art. I've heard men say that they are "too darned fancy" to be of value to the average camper. Unfortunately, pseudo-romance in the form of the frying pan too often takes their place. Shall we broil the steak? No, it is too much trouble, and into the frying pan it flops.

Any camper these days can equip himself with an outfit that will cook each food as it should be cooked. He can use ample variety in cooking methods, broiling his steak, baking his potatoes and boiling his onions. Old time woods cookery may be too "fancy" for modern times, but we can get the same results with modern camping appliances.

Some of the so-called modern camp cooking appliances are not so new after all. An example of this is the folding reflector oven, a useful implement so easily transported that even the wilderness camper can readily enjoy the goodness of baked and roasted food. These reflector ovens are stowed away in many a New England attic. Colonial housewives used to bake biscuits in them before a blazing hearth fire. When the modern kitchen range appeared on the scene, their usefulness in the home came to an end, but their usefulness in camp continues.

Portable gasoline stoves, on the other hand, are something new in the world. These smart little jiggers are a boon to motor campers, and most modern camping is of this nature. A gasoline stove makes the camper independent of fuel and weather, for neither the problem of wet wood nor complete lack of wood need bother him. He always has at hand an intensely hot flame similar to that of a kitchen gas range. A stove of this sort equipped with an oven can perform as creditable all round cooking service as the average city gas range.

Yet even the most confirmed user of a gasoline stove finds it agreeable to fall back on wood now and then. Not to know the spice and cheer of at least an occasional meal from a glowing wood fire is to miss a great deal. Here again the comparison to a kitchen range might apply. One can get a portable wood burning stove that will do practically the same work as a wood burning range.

With some such cooking facilities as the foregoing included in the camping outfit, with fresh food markets within beck and call and with perhaps an icebox on the running board, the camper can live almost as well on the road as he does at home.

Spices for the American Table

SPICES from Makassar and Zanzibar, Batavia and Bombay, and from other points both east and west of Suez, today reach the American table in quality unrivaled anywhere in the world, say officials of the food, drug and insecticide administration of the U. S. Department of Agriculture.

Results of a seventeen months' survey recently completed by the administration show that the United States receives the choicest of spices grown under the tropical sun. During the survey, spice imports totaled more than 150 million pounds and were valued at more than $30,000,000.

The larger amounts of spice imports are received at New York City, but large shipments are also unloaded at Philadelphia, Boston, Baltimore, Savannah and Porto Rico. At these ports, the administration maintains food analysis laboratories in which the incoming spices are microscopically analyzed to insure their purity and freedom from adulterants. During the survey samples from 2,754 shipments, representing some 60 million pounds, were so analyzed. Millions of pounds of spices are allowed to come into the country without a detailed examination because a visual inspection shows them to come up to the standards. Shipments found to be adulterated are detained and required to be reexported or cleaned to meet the standards if the character of the adulteration makes reconditioning possible.

On account of the abnormally high prices being paid for black pepper, food and drug officials have found some adulteration, in which ground pepper shells and siftings were mixed with the pepper berries. Black pepper has first place in our spice imports both in value and volume. In 1928 the black pepper share of America's spice bill was $7,000,000, for which Netherland India and India sent us 24 million pounds of unground black pepper.

Only a small percentage of ground and unground mustard, our second most important spice in point of volume, is found adulterated. Mustard imports last year reached 18 million pounds, valued at more than $2,000,000. China, Japan, Great Britain, the Netherlands and several central European countries furnish it.

British East Africa, Zanzibar and Madagascar sent us five million pounds of unground cloves in 1928, valued at nearly $1,600,000. During the seventeen months covered by the spice survey, only one clove shipment was detained because of adulteration. The high quality standards set up for spice imports has awakened the entire clove industry to the need of producing a high grade product.

Imports of cinnamon and cassia bark, from which cinnamon is made, were also found to be coming into the country in excellent condition. More than eight million pounds of this spice were imported in 1928 from Ceylon, the East Indies, India and China.

Toys Dangerous to the Child's Eyes

By Louis Lehrfeld

NO INJURIES arouse greater sympathy, anxiety and grief than those that cause blindness among little boys and girls, and oftentimes these injuries are the result of dangerous toys. The greatest offender in this respect is the BB rifle. This toy seemingly has no purpose other than to create destructiveness among boys for whom it is purchased.

Every year, following the Christmas season, a number of children, particularly girls, are blinded in one or both eyes because some boy playmate, thrilled with his BB rifle and desirous of exhibiting his skill in shooting, directs his gun toward them and accidentally shoots them in the eye. This is certainly a preventable accident. The BB rifle should be prohibited from sale, together with the pop-gun or any gun that is designed as a toy.

This seemingly harmless toy, the pop-gun, is often equipped with a cork, which is fastened to the gun with a string. Of course, boys are not satisfied to shoot an object that is held in check by a string. They like to insert stones, beads, dirt and other objects that may be shot for distance. It is hard to conceive of parents who will willingly buy guns of any description for children. The child who has such a toy is not exposed to the danger his playmates are.

Bow and Arrow Is Blameworthy

Of equal danger is the bow and arrow. In many of the five and ten cent stores and in department stores, this toy may be purchased. No one thinks of the danger involved until some child is injured. There are many homes today that have been saddened by the bow and arrow wielded by childish hands. One would think that the manufacturer of such a toy would wonder whether the pleasure derived from it outweighs its dangers.

It is not difficult to explain how serious an injury results to the eye from a pointed object such as an arrow. What chance has an eye when it comes in contact with a stick with a sharpened point projected in the air? The saddest part of these accidents is that they occur frequently among preschool children, who hardly realize the disaster that has come upon them. They are often of a forgiving nature, willing to defend those who cause the injury, and are stoical and pleasant patients.

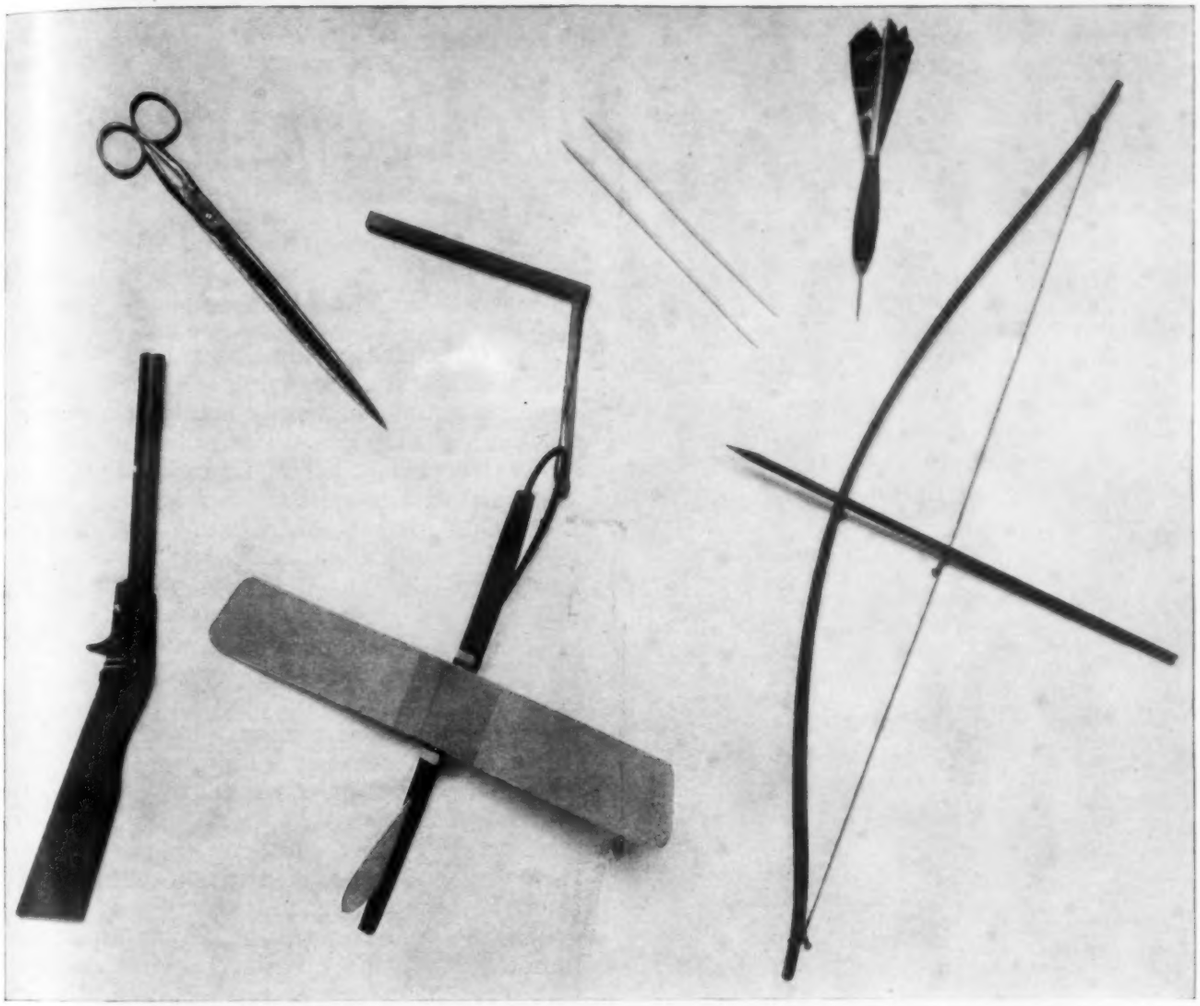
A dangerous looking toy is the dart. This nail-pointed toy, with its feathered tail, looks more like a weapon than a plaything. It is on sale at many toy stores, the dealer thinking little of its potential dangers. Manufacturers of toys need not derive their livelihood from such destructive instruments. They may almost as well sell ice-picks to children and teach them to juggle them.

Sling-Shots Are Perilous

The sling-shot is still on the market, and the home-made sling is equally perilous. Parents should severely reprimand boys who use such toys after the dangers involved have been explained to them. The blowpipe is another implement of potentially destructive nature, particularly to the eyes of children. Another article to avoid is the flying airship sold in many stores, particularly the type that is shot into the air by a large rubber band.

Certainly, persons who design such toys have no children of their own and are not interested in the children of others. Public sentiment can be instrumental in abolishing all these dangerous toys by concerted refusal to purchase them.

Other sharp-pointed implements that readily find their way into the eye are used by children not necessarily as toys. Mention will be made of sharp pointed scissors, and the knitting needle. When the sharp point of the scissors is used for taking out bastings or when the knitting needle is waved about in the hand,



These toys and household instruments have caused blindness in scores of children. In almost every case, the accident resulting in the child's blindness might have been prevented by alert parents.

the points sometimes find their way into the eyes of children and loss of sight results.

Another Sweat-Shop Evil

In many homes, particularly among the Italians living in the East, the mother brings home work from dressmaking and tailoring establishments. Little children are put to the task of taking out bastings; this they do with the end of a hairpin. If one will consider for a moment the motion made in removing a basting stitch, it will not be difficult to realize how a slip may occur and the eye may be injured.

Little boys and girls sometimes untie knots in their shoelaces with hairpins and other sharp instruments. When the child asks for a hairpin, the parent should at least stop to think what use the child may make of it.

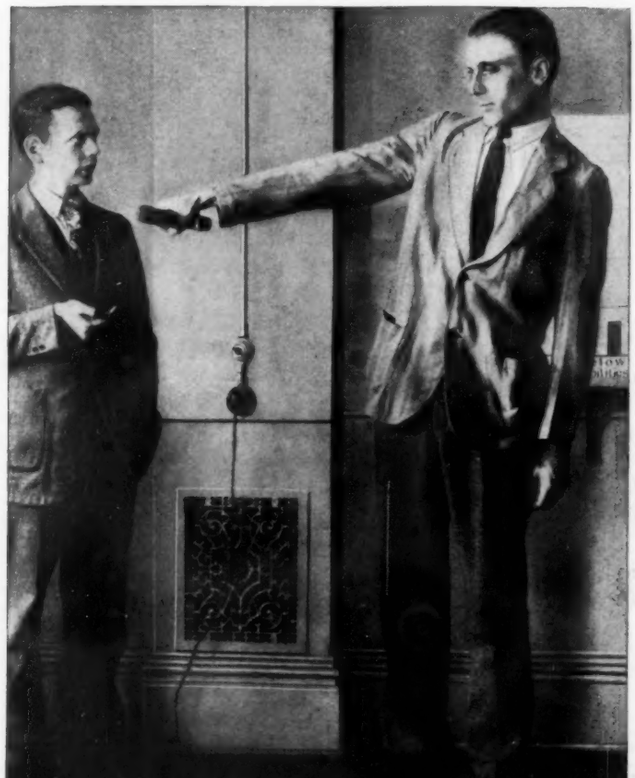
These warnings are not intended to make mollycoddles of children, but so to supervise their play and the selection of their toys that they will not do themselves injury or will not injure others.

Explosive fireworks have been mentioned time and again as a menace to the eyes, as well as to other parts of the body. I want particularly to mention the dynamite cap, which is enclosed in a paper together with small stones. Having seen a number of accidents resulting from the dynamite cap, I am greatly prejudiced against it. Especially am I moved to condemn it when adults try to demonstrate the use of dynamite caps by exploding them in the presence of children. It is usually the child who is observing the fascinating demonstration that is the victim of a stray flying stone. It goes without saying that other forms of explosives are dangerous to the eyes.

Parents May Control Solution

Blindness caused by dangerous toys, explosives and sharp pointed implements is largely preventable. The solution lies in the hands of the public, and more particularly in the hands of the parents. They can put a stop to the whole matter of dangerous toys by refusing to purchase them.

Getting the Most Out of Our Muscles



It is easier to hold a sash weight above the head than at arm's length.

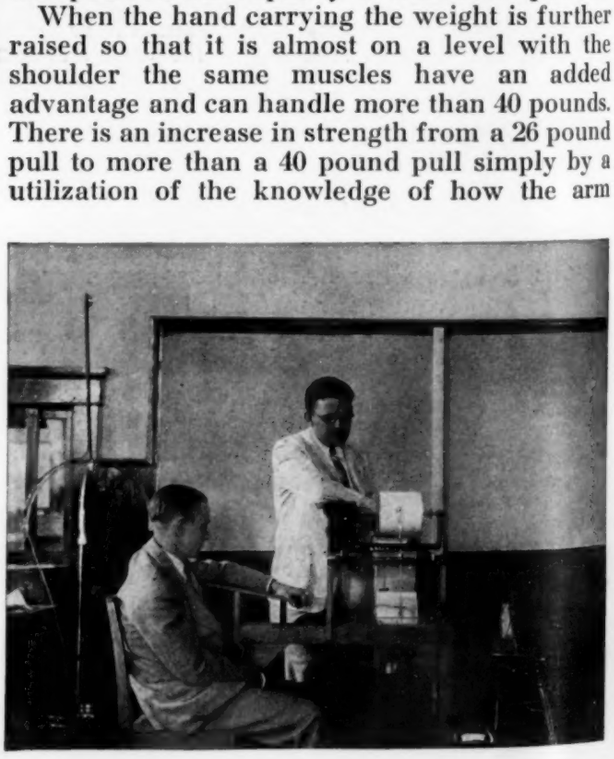
PRACTICALLY every one has from 10 to 20 per cent more muscular strength than he is trained to use. When a person understands how to use his muscles to their best advantage as physical levers, he can move weights that cannot be moved by brute strength alone.

A few years ago a woman made a small fortune by capitalizing these physical principles of exerting strength. She called herself the Georgia Magnet and wagered that strong men could not lift her. Almost invariably she won her bet, and for two reasons. For one reason, her statement that she could not be lifted gave what psychologists call a negative suggestion to the strong men who tried to raise her weight. They were defeated partly because her challenges weakened their confidence. Confidence increases the effective direction of strength, and the effective use of this strength also increases confidence.

The other reason that this tiny woman defeated strong men was that she knew how their strength could be greatly weakened by simple mechanical methods. The outstretched arm is almost powerless. The Georgia Magnet knew this and always kept those who laid bets that they could lift her at a distance great enough to keep their arms outstretched. So doing, she figurately trimmed the locks of the Samsons, and actually trimmed their purses.

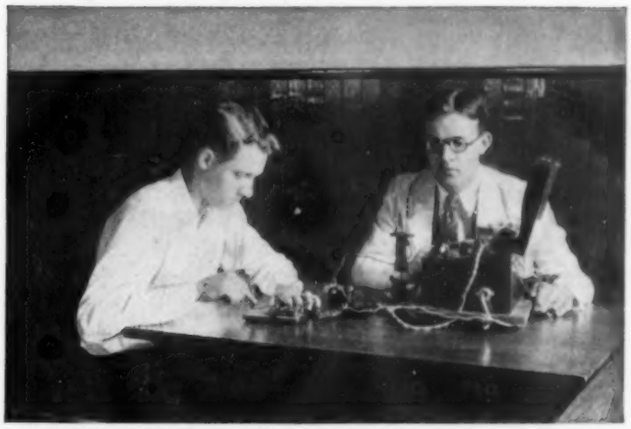
Take the simple exhibition of lifting a heavy weight above the head with one hand, for example. The amount that can be raised can be almost doubled without effort if one knows the physics of the arm. Suppose that when the arm is hanging at the side 26 pounds is the maximum that can be raised by bending the arm at the elbow. As soon as the forearm is raised so that it is at right angles with the upper arm the strength of the arm will seem to be greatly increased and the 26 pounds can be handled much more easily because the arm in this position has capacity to handle 31 pounds.

When the hand carrying the weight is further raised so that it is almost on a level with the shoulder the same muscles have an added advantage and can handle more than 40 pounds. There is an increase in strength from a 26 pound pull to more than a 40 pound pull simply by a utilization of the knowledge of how the arm



A small ergograph to record fatigue resistance of muscles of the hand.

By Donald A. Laird



To measure in one thousandth of a second how quickly muscles can move in different positions.

muscles and bones work as mechanical levers and forces. If a 40 pound weight is to be raised above the head by one arm, one should use both hands to manipulate the weight until one hand carrying the brunt of the load is at shoulder height, keeping it as close to the shoulder as possible.

Another physical advantage that can be gained in weight lifting will be disclosed. When a heavy load, such as a heavily laden market basket or a tool kit, is to be carried on the arm for some time, strength can be increased and fatigue lessened by taking advantage of some other features of the muscle and bone levers of the arm. The muscles are attached to the bones they move in such a way that their power arm is very short. In consequence the muscles must exert great power to overcome a relatively slight resistance at the end of the moving bone. Conversely, this means that a short muscle movement will produce a wide movement at the end of the bones. The body is thus discovered to be put together as a machine best adapted to make quick movements against relatively small loads. So when heavy loads are to be maneuvered, knowledge about how best to use muscles is valuable.

An apparatus to measure resistance to a weight with the palm down and with the palm up.

The heavy basket, it is thus discovered, is carried easiest if it is placed as near the joint as possible, as in the crotch of the elbow. The weight can be carried in the hand with the arm hanging at the side but much more effort is required. The hand is also quickly fatigued, and it may relax its grasp for another interesting reason.

Since most arm and leg muscles pass over a joint before they fasten to the bones they move, bending the joint over which they pass alters greatly their effective use. How this works in the case of the fingers grasping the basket handle was first demonstrated to me in a dramatic way several years ago in a midwestern mental hospital. A patient with suicidal tendencies managed in some unknown way to sneak a sharp butcher knife from the diet kitchen. Getting the knife away from him without any one being injured was a problem. Two of the nurses managed to grab the knife hand from behind while the patient was momentarily off his guard. So far, so good, but it looked as if the nurses would have to hold his hand for many hours before he released his grip on the knife with which he had planned to snuff out his life.

Outlet plugs of the Colgate University laboratory are waist high, so that stooping is unnecessary.

Another nurse knew that if she would forcibly rub her knuckles over the cords on the back of the patient's hand he would release his hold on the knife, owing largely to the pain in the back of his hand, but this could not be done

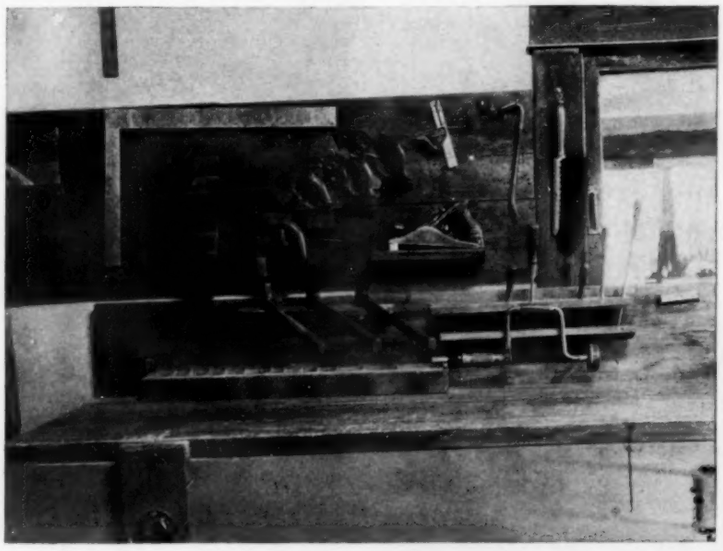
since a strictly enforced hospital rule prohibited inflicting pain. If the nurse had done this, the hospital could have had her arrested for assault and battery.

What to do?

Finally an ex-policeman, who was a patient in the same ward, came forward with the idea that solved the problem. When the hand is bent as far as possible in the direction of the palm by flexing at the wrist, the muscles that control the finger grasp are stretched across the joint, he explained, and it is impossible to clasp the fingers tightly. So the patient's hand was bent downward; he was still keeping his fingers as tight around the knife handle as possible, but he could not keep them tight enough to prevent the knife from being easily slipped out of his grasp.

When the wrist is bent backward the opposite finger effect takes place and objects can be grasped more tightly than before. So the grasp on the basket handle, or on the weights to be lifted above the head, will be increased effectively if the wrist is bent backward as far as possible. This is called extension of the wrist. Simply changing the wrist from extension to flexion causes the fingers spontaneously to grasp at extension and release at flexion.

The muscle that moves the tip joint of the fingers passes over the other joints of the finger. This muscle is the flexor digitorum profundus, and is the only muscle having a bending action on the tip joint of the finger. Since this flexor passes over the other joints at wrist, knuckle and middle joint of the finger it is practically impossible to move just the tip joint; invariably the middle joint of the finger will move with the tip joint, unless the middle joint is held by the other hand.



Tool rack in the shop of the Colgate laboratory, in which all tools are placed so they are ready for the most effective grasp and muscle use.

The thumb tip is flexed by the flexor pollicis longus muscle. The thumb tip can be flexed after slight practice without the other thumb joints moving. The thumb can seldom be turned backward any distance without the little finger moving slightly.

These facts are important in piano playing, when often a blow of several pounds' force has to be exerted on the keyboard to produce a loud tone. Flexing or extending the wrist modifies the force that the fingers can exert on the keyboard.

Muscle-bound persons actually exist, and their condition is largely due either to characteristics of the joint over which muscles pass on the way to the section they move or to too short antagonistic muscles, which restrict joint movements. In rare cases a muscle-bound condition is caused by congenital absence of a muscle.

Practically every one is muscle-bound at the hip and knee joint, because of the rectus femoris muscle, which is active in moving the leg forward. This muscle is short and is responsible for the difficulty of putting the heel back of the head and of kicking above one's head. Exercise and persistent practice, however, have overcome this in many ballet dancers.

Owing to the fact that muscles pass over one or more joints there is a great variety of ways in which strength can be increased or decreased. Dr. Wilhemine G. Wright of Boston, for instance, has discovered that the arm can lift 10 more pounds at arm's length with the elbow kept stiff when the hand is held palm upward than when it is held palm downward.

In such a simple act as getting up from a chair fatigue can be lessened by taking advantage of muscle and bone mechanics. If the feet are drawn in close to the chair the strong thigh muscles will be used, saving the relatively weak arm muscles. To get out of a chair most easily and with grace, one should draw the feet as far under the body as possible and bend the trunk slightly forward; the body almost automatically rises.

Many other times the powerful thigh muscles can be used in place of the arm muscles, as in lifting a wheelbarrow, a heavy suitcase or a laundry basket. In place of bending the back and keeping the legs straight, the knees should be bent in stooping, or squatting, to reach the load. The load is lifted easily by straightening the legs, meanwhile keeping the wrist bent backward slightly to make the grasp of the fingers easier and more certain. The feet should also be placed as close to the object to be lifted as possible;

the Georgia Magnet had her challengers stand with their feet as far from her as possible.

At times there is an advantage in bending at the waist rather than at the knees, especially when only light loads are concerned. This is because in bending at the waist gravity rather than muscles does the work. The muscles merely relax their tension of keeping the body erect and gravity pulls the body. In exhaling breath during sleep, exactly the same principle is involved if one is sleeping on his back. This position enables the muscles of the diaphragm and thorax to relax during the ten or twelve exhalations per minute.

A giant ergograph for registering fatigue of big muscle groups when used in different ways.

In such an everyday matter as scooping up a shovel full of coal for the furnace the same principles can be used. The knees should be bent and the handle of the shovel placed across one knee. The knee then can be used to push the shovel under the coal, and when the shovel is filled the knee can be used as a fulcrum by which the weight of the coal is raised. Considerable scientific knowledge can be applied in developing high efficiency and skill in such pursuits as shoveling coal or spading in the garden.

A form of skill called self-control is chiefly skill over one's muscles, as Emil Coué well knew, comments Prof. T. H. Pear, psychologist at the University of Birmingham in England. Gaining this skill requires a knowledge of the science of muscles and bones. It is worth the effort and time for it is a power that leads to power.

It is a power of which modern habits of living are robbing us in some respects. Take the feet and toes, for instance. Under the best of conditions the toes are clumsier than the fingers, except for the fact that the toes are superior to the fingers in having a greater amplitude of movement under favorable conditions. But even this is apparently being lost and the foot is becoming more clumsy through disuse and actual deformity. Among peoples that do not wear shoes the toes are still often used for grasping objects and for aid in climbing trees.

In walking, the toes normally and automatically are lifted when the free leg is swung forward by the contraction of the three extensor muscles. Apparently the main purpose of this is to keep the toes from hitting the ground. If these extensor muscles are paralyzed for any reason, the walker lifts his leg abnormally high at the knee, producing a string-haltered gait.

So-called civilized shoes hold the toes up from the ground by a stiff sole which quickly becomes permanently curved upward at the toe, thus quickly shortening the extensors through loss of their function. This produces the well-known "claw position" of the toes, which anatomists maintain amounts to a genuine deformity.

Shoe trees to thwart the tendency of the soles to turn upward help overcome this. Going barefoot or following prescribed exercises also helps. So do shoes with generous toes, which permit of action by the extensors. High heels bend the foot joints and further distort the function of the toe muscles, after the same fashion that bending the wrist modifies the finger action.

MAD DOG!

By W.W. Bauer

TAKE a large quantity of ignorance and a great deal of antiquated misinformation, mix with a liberal portion of fear, a considerable amount of sentiment, not too much good judgment, season with a little selfishness and a generous dash of panic, sift well together, and expose for many years to the hot fire of prejudice.

There you have the recipe for a common state of mind with respect to the disease known as hydrophobia, or rabies. Among the lovers of dogs as pets, the employers of dogs as hunters and herders, humane persons to whom abused dogs are an outlet for sentimentality, the haters of dogs, those who fear dogs, and above all those who know nothing about dogs, you can get any shade of opinion that may suit you on the subject of rabies. But you will have a hard time to find the simple truth.

Rabies is a disease of animals and of the human race. At the present writing and for several years, it is and has been prevalent throughout the Middle West. It is always likely to crop out when a considerable dog population comes in contact with wild animals of the dog genus, as on the western sheep and cattle ranges where coyotes still abound. It is a disease of the brain in both animals and man; it should be clearly understood that the word "mad" applied to the sufferers from rabies must be taken in the sense of brain disease and not interpreted as anger or temper; otherwise confusion will surely follow.

Rabies Transmitted through Saliva

Rabies is transmitted through the saliva of the human or the animal patient and not in any other way to the ordinary individual. Saliva may be brought in contact with broken skin or mucous membrane in a number of ways, of which the most common and most obvious is the bite of the affected creature. Licking is equally effective if there is a broken place in the skin or in the mucous membrane. I have seen rabies develop from the scratch of a coyote's tooth on a baby's head, the animal having wandered into a sheepherder's tent on an Idaho range while the family slept. Cattle, feeding from mangers or racks where rabid cattle have fed, may be infected through the saliva if their mouths are injured by coarse stalks in the feed. Handling of the heads of rabid animals or of the living animals may result in soiling of the hands, unless gloves are worn.

Rabies Germ Is Unknown

The germ or causative organism of rabies remains unknown. The nearest scientists have come to that knowledge is the recognition, in certain brain areas of rabid animals after death, of microscopic structures known as Negri

Dogs need outdoor life and exercise to be at their best.

bodies. These are the useful means of accurate diagnosis; finding them settles the matter. Whether they are cause or effect is not as yet known. What is known, as the result of experimentation and observation, is that the cause of rabies, whatever it may be, is to be found in the saliva and that it is admitted to the body through broken skin or mucous membrane. Once it has gained access, nothing appears to happen for a while. The bite heals, unless it is otherwise infected. A month may elapse, or sometimes even longer, before any symptoms appear. This is because the infection travels slowly along the nerves to the brain.

Bite on Head Most Dangerous

The farther the bite is from the brain the more slowly the disease develops; a bite on the foot allows a longer margin of safety than one on the hand; a bite on the head is worst of all. If the bite has been through clothing, shoes or gloves, some of the saliva may have been wiped off the teeth before the skin is penetrated, but it is never safe to rely on this.

It is current belief that a human being suffering with rabies as a result of a dog bite acts like a dog. Nothing could be farther from the truth. There are two kinds of rabies, furious and dumb. In the furious form, there is delirium, convulsions, inability to swallow, and finally death. Dogs, when delirious, run and bite because they are not responsible for what they are doing. Human beings act as they would with any other kind of delirium and that makes the recognition of human rabies difficult to distinguish from the condition that it resembles.

The dumb, or paralytic, form of rabies consists of loss of muscular power, mainly in the muscles of the throat, making swallowing difficult and giving rise to the popular name hydrophobia, "fear of water." This is a bad name. The patients do not fear water; they crave both water and food, but they cannot take either because of the inability to swallow. In the case of dogs, this often gives rise to the mistaken belief that a bone has lodged in the throat, and efforts are made to get it out, a dangerous practice because of the contamination with infected saliva and the likelihood of being scratched or bitten by the animal.

There are many erroneous beliefs as to the cause of rabies. Dogs do not become rabid from being tied up, from wrong feeding, abuse, teasing, hot weather or inborn meanness. Dogs

Dogs do not become rabid from being tied up, from wrong feeding, abuse, teasing, hot weather or inborn meanness.

—and other animals —may develop rabies in midwinter, thus effectually exploding the "dog-days" theory. They may go mad even when properly fed, kindly treated, and never tied or locked up, provided they have been bitten or licked by an animal infected with this disease. The bite's the thing!

How is one to recognize or suspect rabies in a dog? If the animal has been in a fight or shows signs of having been bitten or scratched, it should be watched and kept away from other animals and especially from children for a month. If signs of illness appear, the same should be done, whether there is evidence of

bites or not. By the time the characteristic symptoms of rabies appear it is usually too late to prevent accidental infection of others. Veterinarians advise that when a well trained dog accustomed to staying at home disappears and is absent for several days, returning home with evidences of illness, he should be suspected. Signs of unusual irritability or of extraordinary affection should be regarded with suspicion. Above all, any kind of bite should be reported to the proper authorities, usually the local health department.

Dog Bites Should Be Reported

The reporting of dog bites to the health department is a requirement in many cities, as it ought to be everywhere. Human deaths from rabies can be prevented if the persons bitten are given the proper treatment at the time of the bite. There is a natural tendency to kill an animal at once when it has bitten some one. It is a reaction of self-defense born of primitive fear. On the other hand, it is necessary, if the characteristic changes in the brain are to be identified, for the disease to take its natural course quite or almost to death. The bite should be reported, and the animal detained in a safe place until events prove whether it is rabid or not. A rabid animal will always die, usually within a few days after the onset of the disease.

The reporting of dog bites is of further importance because of the fatal character of rabies in the human subject. Recovery from developed rabies is unknown. On the other hand, prevention, thanks to the genius of Pasteur, is practically certain. It is necessary, however, that the matter be taken in hand promptly.

When a person has been bitten by a dog, the correct procedure is simple. The animal is first observed for ten days. In the meantime the wound is thoroughly cleansed and cauterized. If at the end of ten days the animal is living and well, you may be sure it is not "mad." The injury may then be appraised at the actual extent of damage inflicted by the bite itself. If the animal dies the head should be packed in ice and sent to the nearest state laboratory for examination.

Then the Pasteur treatment or one of the modern modifications of it should be started on the person bitten without waiting for a report. If the report should not show rabies, the continuance of the treatment should depend upon the physician's judgment as to the circumstances. It should be remembered that laboratory methods are not infallible, especially if the animal has been killed too soon. Whenever there is the shadow of a doubt, the preventive treatment should be finished.

Antirabic treatment today is a far different matter than in years gone by. At the beginning only Pasteur in Paris could prevent rabies, and people came from all over the world to be protected, often sacrificing their last dollar and sometimes traveling on subscription funds raised by friends or communities. Gradually, Pasteur institutes were established in other countries, but even then the course was expensive, because it was necessary to take up residence in the institute and pay for board as well as treatment.

Today all that is changed. Not only has the original heroic Pasteur treatment been modified to be less of an ordeal to the patient, but modern production and distribution methods have placed antirabic treatment within reach of the telephone. Many city health departments and most state health departments have it in stock. The manufacturers will rush it without delay to any point at which it is needed. And the patient does not have to mortgage the old homestead to pay for it.

Muzzling Is Cruel

Health workers know that dogs—to look at the matter from Towser's point of view for a while—are unhappy and unhealthy in cities, where they must be kept indoors a great part of the time lest they be stolen and where they are made ill by diets of purloined garbage, maliciously poisoned or injured by automobiles. Dogs need outdoor life and exercise to be at their best, as we might expect when we consider their ancestry. Many cities now require that dogs be kept upon the owners' premises, except when muzzled or on a leash. The leash is all right. The muzzle is all wrong. Any muzzle that is effective and cannot be removed by the animal is uncomfortable, and many of them are cruel. Worst of all, muzzles render the dog defenseless when attacked. Most existing city ordinances, as the writer observed from thirty answers to a recent questionnaire to American cities, have the muzzle requirement.

The best solution seems to be a yard or run for the dog, with a leash when he is out. Tying up to short ropes or chains is as bad as muzzling and may well make the dog ugly, though not "mad," unless it allows a wandering rabid dog to attack him without a fair chance to escape.

Dogs can now be vaccinated against rabies, and the vaccination appears to be effective for a year. The value of the vaccination as a community protection is, nevertheless, problematical, for the reason that it is rarely if ever possible to see that all dogs are vaccinated regularly. Strays and dogs owned by transients, as well as litters born between license collection dates, are sure to escape vaccination at least for a time and may introduce the disease. The measure seems a worth while addition to the other protective measures, but undependable by itself.

The Home Swimming Pool

By Marion Brownfield

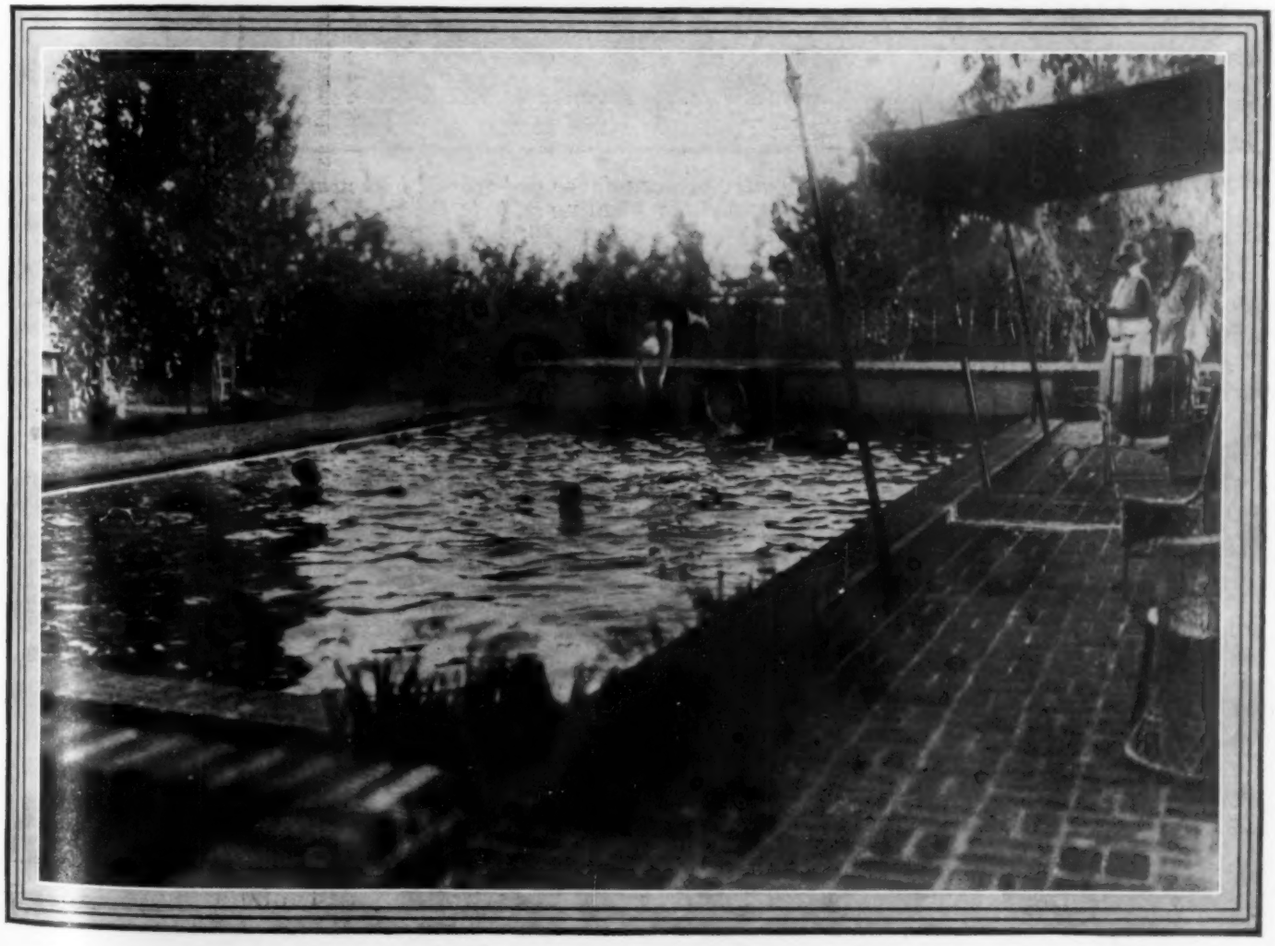
THE swimming pool may be a thing of beauty as well as of practical pleasure. For these reasons, no country or suburban home is complete nowadays without one. The charm of the swimming pool, suitably landscaped, is similar to that of the water garden. Its effect is contrast, and yet it should be an integral part of the grounds.

In locating the home swimming pool the most practical consideration is to choose the lowest level of land, for then drainage is easily accomplished by force of gravity. As privacy, shelter and convenience to a dressing room add to its daily pleasure, it is ideal to build the pool in proximity to the home itself. On the other hand, chimneys that might drop soot into the pool are nuisances that must be avoided.

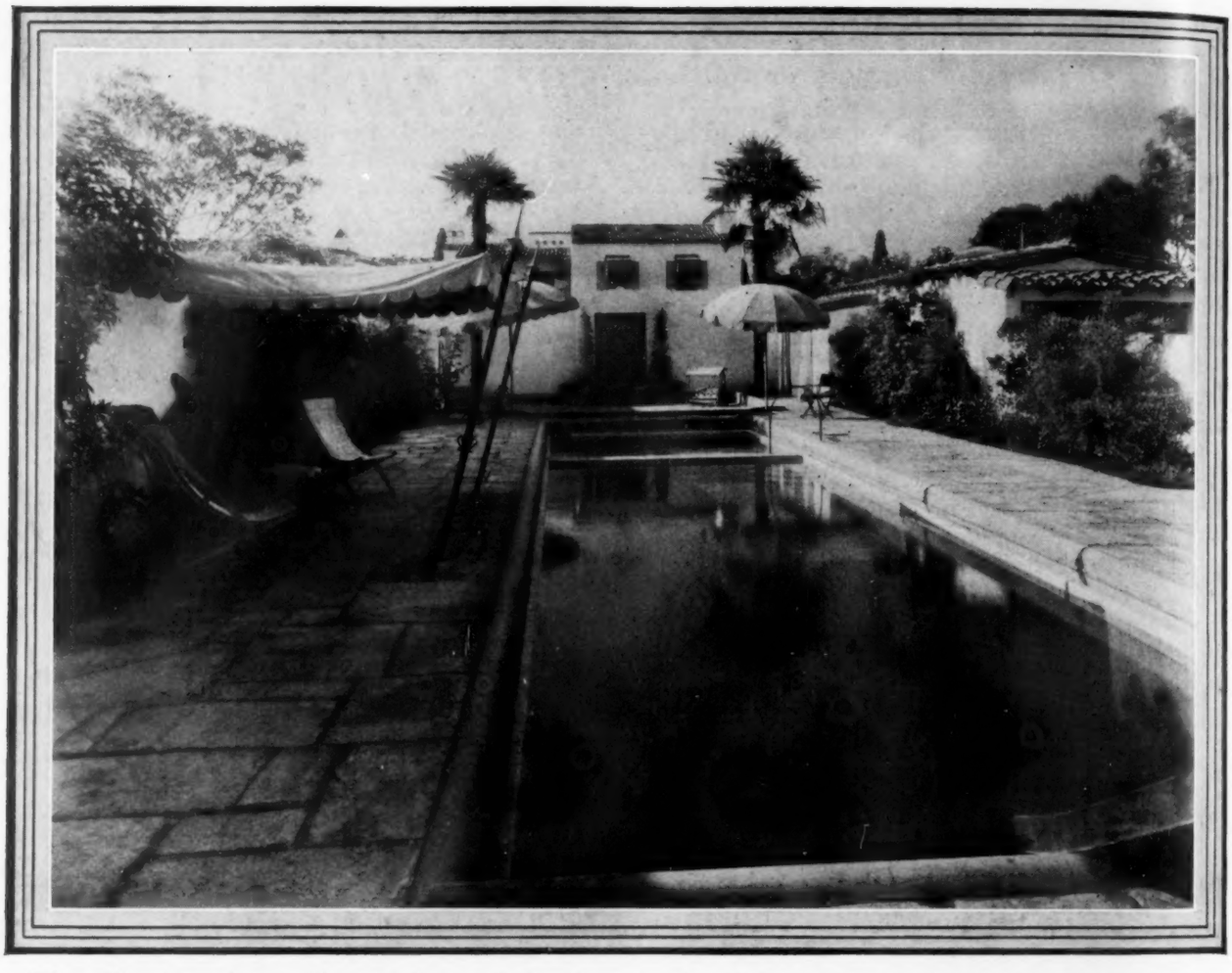
The rectangular shape, which provides length for amateur races, is popular. A pool from 50 to 150 feet in length should be proportionately broad. Three and one half feet is about right for depth. If greater depth in the same pool is provided for diving, the change of depth should be gradual. Indeed for safety's sake, the two depths should be marked on the side of the pool.

These sides, or walls, are preferably straight and should be neither too smooth nor too rough.

This leads us to a choice of materials for the swimming pool. Marble, ceramic mosaic, brick, tile, terrazzo and reinforced cement are widely used and the material can be decided on when the expense is estimated. The lightest tones are usually most pleasing in appearance as they



The swimming pool of the M. L. Kennard home in Pasadena, Calif., is flanked by wide bricked terraces, one of which furnishes a diving eminence.



The patio atmosphere with enclosing walls has been developed around home swimming pools in southern California. Both the wall fountain and the planting add to the cool appearance of the pool.

suggest cleanliness and refreshment and have a cool beauty in themselves. Water-proofing and reinforcement to prevent cracks are important.

Tile or brick walks around the pool give an artistic effect and blend in with the grounds as a harmonious whole. More informal walks suggest the water garden rather than a sanitary bath.

To gain access to the pool, steps on four sides are better than ladders, although these may not be necessary in a shallow pool. When used, they should be like the quaint steps leading to early Spanish-California bathtubs—placed outside the pool. No obstructions in the way of steps, different levels or pipes should interfere with the pleasure and safety of the outdoor plunge.

The temperature of the water is another detail to plan carefully. According to swimming experts from 70 to 80 F. is a healthful temperature for average comfort. For this reason, cold spring water is not as good as that which comes from a lake, river or pond. In any case the intake pipe should be near the surface so that the sun will assist in warming the water. If artificial heat is necessary the water is best heated before it enters the pool. All these details naturally depend on the climate, the altitude and the proximity of the pool to house plumbing.

A separate dressing room can be built if it is desirable to locate the swimming pool at a natural depression some distance from the house. A pergola or arbor may provide privacy between the home and pool, and the rustic bridges seen in Japanese water gardens are full of suggestions for connecting the swimming pool with a second story. The second story of a garage may be fitted up for a dressing room.

In southern California, much of the sheltered patio atmosphere has developed around the swimming pool. Architecturally, the long pool harmonizes with a broad terrace of Mediterranean or Renaissance inspiration. Enclosing walls in courtyard style provide privacy, and verdant loveliness is easily added with vines, shrubbery and potted plants. Awnings and canopies, too, are welcome oases from sunshine.

Too generous a planting close to the edge of the pool is not advisable. The arrangement of

water plants in a corner bed softens the outlines of the pool and gives the natural appearance so cherished by all lovers of the outdoors. Fleur de lis, papyrus and palmetto are frequently employed in southern California, and the shadows of stately palms and other trees silhouette themselves attractively both against blue sky and crystal pool.

In the absence of moonlight the pool may still be enjoyable if electrically lighted. Spotlights with ample reflectors will make the pool safe. Lights on the house or on the enclosing walls are often sufficient. In one charming garden night lighting is part of the awning scheme. Wiring is carried along under canopies and ends in a lantern-like fixture.

There are numerous other accessories that make the home swimming pool alluring at many hours. The wall fountain repeats the cooling splash of water and is especially happy when tiles and stucco in the home are repeated in the pool. A diving eminence not only affords sport but modifies the severity of a rectangular pool. Rubber mats are as useful as door mats. And inviting lounging furniture in stick willow, wicker or wrought iron makes the swimming pool a place for hospitality as well as for recreation.

Tonsils—IN *and* OUT

By Emanuel Krimsky

PART II.

16. What is quinsy?

Quinsy is an abscess immediately surrounding the tonsil but not in the tonsil itself. We can most easily understand it by reiterating our former example of the orange and its covering, the rind. Immediately around the tonsil itself, but beneath its loose shell or capsule, the pus burrows itself. It can readily be seen that if the tonsil is shelled out or properly removed quinsy will never occur.

Quinsy is an extremely uncomfortable condition. It is incapacitating and will almost surely recur again and again unless the tonsils are removed. An attack of quinsy is more severe than an attack of acute tonsillitis. The patient feels his throat being choked up with a painful lump and usually requires relief by having this abscess incised and the pus let out.

17. What is the relation between diphtheria and tonsils?

Every mother or every doctor who sees white spots on the tonsils in case of a sore throat always thinks of the possibility of diphtheria.

Experience has taught us that the child with large tonsils is the most favorable subject for diphtheria infection, and while a tonsil operation is not a positive preventive of diphtheria, it will considerably lower the incidence of diphtheria in these types of cases. Not only that, but a child possessing large tonsils when attacked with diphtheria is a much poorer risk than a child with small tonsils or with none at all.

18. What is the relation between bad tonsils and stomach disorders?

A normal tonsil has no ill effect on the normal activity of the stomach. A diseased tonsil, manufacturing or secreting pus, will by the act of swallowing continually send pus down to the stomach often with unfavorable results. In fact, physicians and surgeons always think of the tonsils and the teeth as possible sources of stomach disturbances. One must not assume, therefore, that if the stomach is diseased or disordered the tonsils are likewise abnormal. There are many patients with stomach disorders whose tonsils do not require removal.

19. What is meant by a "focus of infection"?

A focus is a source, a starting point. When a focus of infection, such as diseased tonsils, is neglected, infection begins to spread to the joints, the heart and other organs. It is only before this spread to other organs has taken place that we can expect the greatest benefit from the removal of the focus. That is why a person with a rheumatic heart, for example, cannot expect a cure of his heart disease by removal of the tonsils. He may expect an amelioration or a check of his disease in the heart or in other affected organs, but he has procrastinated and allowed a spread of the disease to the heart and the heart itself has already become a secondary source of trouble. Had he wisely looked after these initial, or primary, sources at the proper time, he would have prevented trouble in other parts. The tonsil is not the only potential source of infection. A bad tooth is a potential focus. A discharging nose is a potential focus. There are other foci of infection in the human body.

20. What is the relation between bad tonsils and foul odor of the mouth?

Bad tonsils, as a rule, do not produce foul odor in the mouth, in spite of the fact that a

foul fluid may be expressed from them. They may contribute to a bad odor in the mouth but are rarely the main cause. A foul odor in the mouth is most commonly due to bad stomach, certain diseases of the nose, certain poisons from occupations and bad blood.

21. What is the relation between tonsils and rheumatism?

Bad tonsils and bad teeth are definite sources or causes of rheumatism. In fact, a person afflicted with acute rheumatic fever often has a preceding or concomitant attack of acute tonsillitis.

22. What is the relation between tonsils and heart disease?

Most of the cases of heart disease in children are classified as rheumatic, and are usually attributed to diseased tonsils. Dental infection in childhood plays a comparatively small rôle in heart disease. The tonsils assume much of the responsibility for this disorder.

23. What is the relation of tonsils to swollen glands of the neck?

It must not necessarily follow that because a child or adult has swollen glands in the neck the tonsils are diseased. Nor is the converse always true. A child or adult may have extremely bad tonsils with little or no trouble in the glands of the neck. There are, however, a certain proportion of cases in which the tonsils cause the glands of the neck to become swollen. A mother who brings her child to the doctor to have his tonsils removed just because the glands of the neck are large and without any tonsil trouble cannot usually hope for the disappearance of the swelling by this procedure.

24. What is the relation between tonsils and St. Vitus' dance?

St. Vitus' dance is not a nervousness, as was formerly supposed, but an infection commonly having its origin in bad tonsils. In fact, it is regarded as one of the common manifestations of rheumatism in children, and it is frequently found that the heart is affected before or after the onset of St. Vitus' dance.

25. What are the methods employed in treating diseased tonsils?

The five methods employed in the treatment of diseased tonsils are: (*a*) medicines; (*b*) x-rays; (*c*) radium; (*d*) electrodesiccation, and (*e*) operation.

26. Why is medicinal treatment unreliable?

A diseased tonsil is diseased throughout its length and breadth. Medicines do not penetrate. They reach the surface only. Medicines cannot shrink the tonsil without damaging the rest of the throat.

27. What are the merits of x-ray treatment?

When this method was originally advocated, its sponsors thought it would safely replace the tonsil operation in a large number of cases. But experience has shown that the effect of the x-rays cannot be confined to the tonsils alone; the rest of the throat tissue shrinks and dries up, so that the patient complains of annoying and constant dryness of the throat. Not only that, but x-rays do not cause the tonsils to disappear. They are reduced in size but are as diseased as ever.

28. What are the merits of radium treatment?

Radium treatment has the advantage over x-rays in that it can be applied to the tonsils without affecting the rest of the throat. Radium, like x-rays, will cause shrinkage of the tonsils, but the disease still remains. However, in cases in which the patient is too feeble for operation or is very old, it may be tried.

29. What are the merits of the electrodesiccation treatment?

The method of electrical drying out of the tonsil is preferable to radium treatment. It is not as certain a method as operation and has another disadvantage—the patient must be treated eight or ten times. It is absolutely safe and there is little or no pain. It should be used only when an operation would be a serious risk for the patient.

30. What is the best method of treating diseased tonsils?

Operation, without question, is the best method of treatment. A complete removal and shelling out of the tonsil should be done.

31. When should a tonsil operation be avoided?

A tonsil operation should be avoided in the following instances:

(*a*) When the tonsils are normal. Doctors do not always agree on what constitutes a normal tonsil, but the mere presence of tonsils is no reason for removing them. They must either cause bad symptoms or must on examination look distinctly diseased.

(*b*) When the patient is a bleeder. This condition is comparatively rare and runs in families.

(*c*) During an acute attack of sore throat or shortly thereafter.

(*d*) Enfeebled constitution, resulting from weak heart, bad lungs or other dangerous conditions.

32. Is the tonsil operation of modern origin?

The importance of removing tonsils has been recognized for more than 2,000 years. At first, crude methods were employed, such as trying to pull them out with the fingers, drawing them out with hooks, snipping them off with scissors and various other ways. These methods were helpful in some cases, but after they continued to be practiced more and more, the list of complications grew. Hemorrhages from the throat were recorded with increasing frequency,

so that for several hundred years thereafter all attempts at treating the tonsils were abandoned.

About 200 years ago a tonsil instrument was devised to cut out part of the tonsil without removing it in toto. This method was called tonsillotomy and was employed with modifications and improvements until about fifteen years ago when physicians realized the shortcoming of this incomplete operation; namely, that the tonsils would often grow again, since the roots were left in. This led to a still further improvement, and at the present time the recognized operation is a complete removal of the tonsil with its roots and is known as tonsillectomy. When removed by this improved method the tonsils cannot grow back.

33. What barrier does age offer to a tonsil operation?

Age is not an essential barrier to a tonsil operation. The operation is employed with safety in children as young as 1 year, or in adults as old as 65 or 70 years. It is not the age but the constitutional makeup of the individual and the nature of the condition that are the best guides to operation. Certain young persons of 10 or 15 or 20 years of age are more of a surgical risk than some persons past middle age.

34. What are the dangers of a tonsil operation?

A tonsil operation performed by a conscientious and experienced surgeon rarely offers any complications. In fact, the complications following tonsil operations are so few and so slight that the cautious surgeon never fears untoward results.

35. What part does season play in favoring tonsil operation?

Season plays the same part in tonsil operation as in any other operation. Mothers peculiarly fear tonsil operations on the children during cold weather, but are willing to subject their children to hernia or appendix operations without waiting for warm weather to ensue. The danger of cold weather is not from the operation as much as from the ether. This element of danger does not exist with local anesthesia. With proper precautions, an etherized child can usually be prevented from succumbing to pneumonia irrespective of the nature of the operation or the season in which it is performed.

36. What anesthesia is employed for tonsil operation?

For young children, ether is the anesthetic employed.

In older children, say over 15 or 16, but especially those who can cooperate with the surgeon, and in adults, local anesthesia is the method of choice.

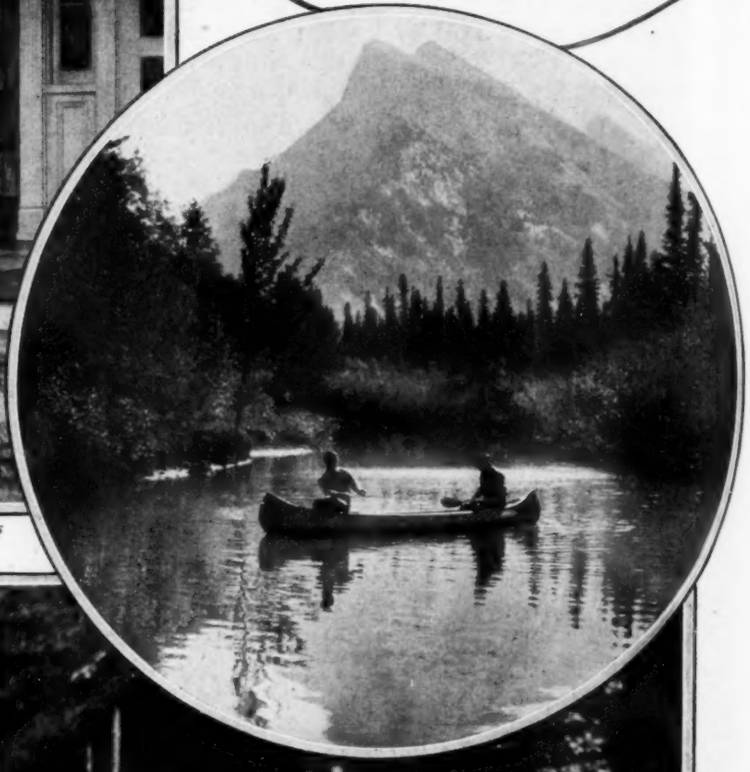
Local anesthesia is absolutely safe, because a synthetic chemical derived from coal is employed. It is absolutely effective in abolishing pain and the after effects of ether are not present. It makes the operation almost as simple as the extraction of a tooth. Formerly cocaine was employed, and this was often dangerous.

37. Are tonsils indiscriminately removed?

Sometimes tonsils are removed indiscriminately. The doctor who is not critical may remove tonsils because of the vogue, because he feels they might just as well come out any way, or for some other inadequate reason. The competent doctor removes tonsils when they are enlarged, when they are diseased or when there are other definite reasons for removal.

In the next issue, Dr. Krimsky will write on adenoids.

Dr. Sunshine and Mr. Shade



Photos by H. Armstrong Roberts

Ewing Galloway

Wide World

H. Armstrong Roberts

The Fermented Milks

By James A. Tobey

ARTIFICIALLY soured milks have been popular as beverages for many hundreds of years. As long ago as the thirteenth century, that most celebrated of world travelers, Marco Polo, described the kumys, or koumis, the soured mare's milk made by the Tartars. Of late years, buttermilk, acidophilus milk and other fermented milks have been gaining in favor in our own country, while acid and effervescent milks continue to be consumed with gusto in the Old World.

A fermented milk, as the term is now generally used, is simply a milk made sour or acid by the action of bacteria or other organisms on the milk sugar or lactose. The microbes that usually bring about this desirable change are members of the lactic acid group of bacilli, though in some instances yeasts and organisms other than bacteria may be employed. Lactic acid bacilli are not only harmless to man, but they are among the many microbes that are actually helpful to human beings. Fortunately, not all germs are bad, but only those that cause specific communicable diseases.

Buttermilk

Perhaps the best known of the fermented milks is buttermilk. Genuine buttermilk is the liquid remaining after the fat has been removed from milk by churning. Since sour cream is usually employed in modern butter-making, the remaining buttermilk is slightly acid, a condition that results in breaking up the curd and thus making it more digestible. If, on the other hand, sweet cream is used, the resulting buttermilk is really nothing more than a skim milk.

Much of the commercial buttermilk is made not from the residue after the manufacture of butter, but by taking skim milk, pasteurizing it, then artificially souring it by adding the proper bacteria, and finally stirring or churning it somewhat to disperse the curd particles. Such buttermilk is, of course, just as nutritious as that derived directly from the churn.

There is said to be an ancient Hindoo proverb that, "A man may live without bread, without buttermilk he dies." In the light of modern knowledge this axiom seems rather extravagant. Buttermilk is a food product of value especially because of its easy digestibility and its favorable content of beneficial bacteria. It is, however, not equal to pure whole milk as a nutriment, for whole milk contains the precious fat that is lacking in buttermilk, and this fat is rich in the vitamins, particularly vitamin A, essential to growth and general good health.

Buttermilk contains on the average 91 per cent water, as against about 87 per cent in whole milk. There is only half of one per cent of fat, but protein, the tissue builder, is fairly abundant, amounting to 3.5 per cent. There is from 3.5 to 4.5 per cent of lactose, or milk sugar, and the ash or minerals, such as the lime salts that build bones and teeth, are present to the extent of from 0.65 to 0.73 per cent. Buttermilk is an excellent beverage, but the buttermilk enthusiast should also drink at least one glass of whole milk a day in order to aid in optimum nutrition.

Acidophilus Milk

The intestinal tract of man always harbors a great number and variety of micro-organisms, or germs. This collection of microbes, scientifically known as the "bacterial flora" of the intestine, differs in each individual, for its content is controlled to a considerable degree by the nature of the diet. Persons who drink plenty of pure milk tend to have more favorable bacterial flora in their intestines than do those who never or seldom imbibe this necessary fluid.

The young infant has in his intestine a preponderance of the favorable bacilli known as

Marco Polo and his uncles at the court of Kublai Khan. Marco Polo described the kumys, the soured mare's milk made by the Tartars.

Lactobacillus acidophilus, but as the child grows older, these are usually displaced by other less advantageous, though not necessarily dangerous, types. The intestine of the average adult usually abounds in the so-called proteolytic, or protein-digesting, and other putrefactive bacteria. There are those who believe man would be better off if his intestinal system still contained mostly the acidophilus bacilli of infancy.

In order to help change the intestinal flora there are now manufactured and sold the acidophilus milks. These are whole or slightly skimmed milks that have been inoculated with the *L. acidophilus,* the lactic acid producing bacillus. When this milk is ingested in sufficient quantities, the favorable acidophilus bacilli are implanted in the intestinal tract, driving out the putrefactive and other types. Acidophilus milk has been found to be useful in cases of constipation, colitis, diarrhea and digestive disturbances, as well as by contributing to the maintenance of general health.

Milk is the best carrier of the *L. acidophilus,* for the germ thrives in the presence of the lactose or milk sugar, which is naturally present in milk. Pure lactose powder may, in fact, be taken with acidophilus milk, as this proximity aids in promoting the fermentation in the lower intestine which makes an unpleasant environment for the less desirable bacteria. To be truly effective, acidophilus milk must be fresh and contain an enormous number of the bacilli.

A score or so of years ago Dr. Elie Metchnikoff thought that he had discovered the bacillus of long life in the so-called Bulgarian bacillus, which had been used for ages in the Balkans to sour milk. For many years thereafter Bulgarian yoghurt was a popular beverage, but, in 1914, Drs. L. F. Rettger and H. A. Cheplin of Yale University began experiments that eventually proved that the *L. bulgaricus* could not be implanted in the intestinal tract at all. These investigators did show, however, that it was the closely related organism, the *L. acidophilus,* that was of real value in this connection.

Acidophilus milk is now generally sold in bottles by leading milk companies and it may be obtained in most drug stores, at soda fountains and in well equipped restaurants. It has, in general, the favorable properties of whole milk, the most nearly perfect of the foods of man, as well as the added advantage of those highly beneficial bacteria. Good acidophilus milk can be most highly recommended as a desirable part of the normal diet, as well as in such special cases as may be suggested by the physician.

Some Other Fermented Milks

The number of fermented milks that have been made for centuries in Europe, Asia and the Far East is legion. The Balkans, Russia and Turkey have long been famous for such products as the kefir of the Cossacks, the

kumys, koumis, or kumiss of Russia and Mongolia, the yoghurt of Bulgaria and Turkey, the mazun or matzoon of Armenia. In Egypt there is lebin; in India dadhi. The Scandinavian countries have a fermented milk called taetle. An excellent description of these products and, in fact, of all the fermented milks is given in Department Bulletin No. 319 of the U. S. Department of Agriculture.

Kefir, also called kepi, hippe and various other names, all of which meaning pleasant or agreeable taste, is made from the milk of sheep and goats, as well as of cows. The method of manufacture is primitive, as it consists merely of filling a somewhat dirty goatskin with milk, adding kefir grains and hanging it up in a doorway where each passerby may give it a kick. As the kefir milk is removed from time to time, fresh milk is added to the goatskin and the process continues indefinitely, or until so much foreign contamination has got in that no more good results are possible. Kefir milk contains alcohol and is intoxicating. Imitations of it, somewhat more sanitary, have been made in this country.

The kumiss made from mare's milk in Russia and Asia is manufactured by methods as unclean as are the native procedures with kefir. The fermentation is begun by adding decayed matter to milk and then is continued by withdrawing the finished kumiss from the dirty vessels and adding more milk. Yeasts and bacteria both play a part in the fermentation and the product is also alcoholic. The kumiss occasionally sold in this country is, of course, a much more carefully supervised product.

Yoghurt is a fermented milk having no alcoholic content, as its properties depend chiefly on the action on the milk of the group of so-called Bulgarian bacilli. In the Balkans the method is to use a portion of the previously fermented milk to start a new batch. Bulgarian yoghurt is made in this country, but is less popular today than formerly, as it has been displaced largely by acidophilus milk.

Of all the fermented milks, acidophilus milk is recognized today to be the most valuable, though buttermilk also has advantages. Both of these products are worthy offspring of milk and both deserve the popularity they enjoy.

The Scientist's Physique

THE general impression is that those who know most about the principles of good health are often the most neglectful of their own physical well being. Doctors, who devote much of their time to preaching personal hygiene to their patients, are thought not to practice healthful living in their own daily lives. Scholars are often assumed to be forgetful of the adage mens sana in corpore sano.

The cartoonist is more than likely to represent the typical college professor as a person of frail structure who appears to struggle through life with the self-imposed handicap of a neglected body. Pasteur remarked that science should be the highest personification of nationality because, of all the nations, that one will be foremost which shall be first to progress by the labors of thought and of intellect. Such eminence is not likely, however, to be achieved by physical weaklings.

Fortunately, observations that have lately been completed by Ales Hrdlicka of Washington give no occasion for the traditional beliefs about defective or inferior physiques, at least so far as American scientists are concerned. He has carefully measured without choice a hundred members of the National Academy of Sciences. This represents about half of a membership rigidly selected from among the foremost representatives of the different sciences. They are, therefore, a selected group of high-class brain workers.

The most striking fact brought out by Hrdlicka's examination is that these men, barring rare exceptions, are in no way inferiors but rather superiors in physique, strength, health and longevity, as compared to the American and even the Old American population at large. It is decisively not a case of strong minds in weak bodies but of strong minds with strong constitutions.

Furthermore—and this Hrdlicka regards as especially significant—the head (and hence presumably also the brain) of the members of the academy exceeds in size not only that of the population at large but even that of the well educated and professional Old Americans. It is clear, he adds, that outside of the prevalence of above-the-average physique and above-the-average size of head, the highly talented men of science conform in their traits with the racial groups to which they belong.

One may conclude, with the Washington anthropologist, says *The Journal* of the American Medical Association, that in all probability, in science at least, the strongest and ablest healthy minds go generally with strong, healthy bodies; that intensive, prolonged mental work is concomitant with larger-than-average head and brain, and, finally, that such intensive mental work evidently does not shorten life. Perhaps this will dispose of the belief that an eminent man of science is one sided in mind, with a frail or neglected body.

Poisonous Gases in and about the Home

By Howard W. Haggard

A modern industrial gas mask, one of the humane developments of the World War. Before the war industrial gas masks were inefficient. The gas mask consists of a facepiece, tube and canister. The air as it is breathed in is filtered by the chemicals in the canister.

IN MODERN industry and in every day life poisonous gases are used or liberated to an ever increasing extent. Yet, in spite of this prevalence, the use of these noxious substances is less dangerous than the use of automobiles. The casualties from automobile accidents outnumber many times over the casualties from poisoning by noxious gases. You will say perhaps that there are more automobiles than there are sources of noxious gases and for that reason there are more accidents. But such is not the case.

Sources Are Numerous

Consider the sources of noxious gases present in any city. Almost every dwelling house is piped with illuminating gas, which contains from 10 to 30 per cent of carbon monoxide. In the basement of each of these houses is a furnace and the gases that pass into its flue are nearly as poisonous as the illuminating gas. In many of the basements, or even in one of the rooms above, is an electric refrigerator which holds—and safely—several pounds of a liquefied noxious gas such as sulphur dioxide, ammonia or one of the anesthetics like ethyl chloride.

In the back yard of every third or fourth house is a garage which covers a car from the exhaust of which a cubic foot or more of carbon monoxide is ejected during each minute the engine runs. The tank of the same automobile is filled with a volatile poison, gasoline, perhaps rendered more poisonous by the addition of some antiknock compounds. In the winter the radiator of the car is filled, perhaps, with diluted wood alcohol, which may steam forth its vapors.

The sources of noxious gases do not end with the house and its garage. Down the street a little way there are factories in which hydrogen sulphide, benzol, carbon bisulphide and other volatile poisons are used or produced. The cold storage plants in the market district have ammonia gas compressed into strong iron cylinders. Near the edge of the city the water purifying plant has chlorine gas, likewise compressed into cylinders. When the fire engines are called out there is always another source of noxious gas in prospect. The smoke from the burning building contains carbon monoxide and, if there is a smoldering fire, wood alcohol besides. Chemical stores may be spilled and add to the poisonous nature of the smoke, or inflammable celluloid stored in the building, perhaps as moving picture films, may catch afire and fill the air with the dangerous brown fumes of nitrogen dioxide.

Most of the Gases Are Easily Handled

Certainly the sources of noxious gases outnumber the automobiles. The reason that there are comparatively few casualties from these gases lies in the fact that people handle the automobile but the noxious gases for the most part handle themselves. The gases are more reliable and can be trusted to stay where they belong better than can the cars that are driven by men. The illuminating gas in the house stays in its pipes or burns safely unless some one interferes; the gases in the electric refrigerator stay where they belong except in rare cases of damage to the machinery; the flue gases from the furnace go out the chimney if the furnace is sound and the flue is tight, and the

exhaust from the automobile escapes harmlessly into the air if the doors of the garage are open when the engine is running.

Treated with reasonable respect the noxious gases as they are used or produced about the home are free from danger. But they are not always respected and their behavior is not always understood. Therein lies their danger. The situation is like that of the child with matches. Matches are useful and safe so long as one knows their dangers.

There are many different kinds of noxious gases, but in spite of their chemical or physical difference they all fall into three groups so far as their action upon the body is concerned. These three groups are: (1) irritant gases, (2) asphyxiant gases and (3) volatile drugs and anesthetics.

An irritant gas is one that induces inflammation in the tissues with which it comes in contact. Ammonia belongs to this group. The household fluid ammonia is a solution of the gas in water and its pungent odor is due to the escape of the gas into the air. When ammonia is present in the air it irritates the eyes and nose and throat. The gas dissolves in the fluid on the surface of these delicate tissues and the consequences are the same as if diluted liquid ammonia were poured over them. The tissues are slightly burned and that burning or irritation is painful.

The injury to the tissues, too slight to be seen, brings about inflammation. Inflammation is an active process which can occur only in living tissues. It is associated with an increased flow of blood to the injured part so that it becomes red and warm; the fluid of the blood seeps from the vessels and there is swelling and, as every one knows, pain. Inflammation may not develop fully for some time after the original injury to the tissues. Sunburn, which is an inflammation of the skin, shows the sequence of events described here. The ultraviolet light of the sun injures the skin, but too slightly to be observed at once; an hour or even longer afterward the inflammation develops and shows the cardinal symptoms of heat, redness, swelling and pain.

Inhalator used for resuscitation from gas poisoning. The apparatus supplies a mixture of oxygen and 5 per cent carbon dioxide. The carbon dioxide stimulates breathing and hastens recovery. Artificial respiration by the manual prone pressure method is employed to start breathing.

A mine rescue team being checked in at a mine fire. The box strapped on the back of the man at the left is a self-contained breathing apparatus. The instrument contains a cylinder of oxygen, and while wearing the apparatus the man can go safely into air contaminated with any gas or with smoke, or he can work under water.

Irritant gases cause inflammation in different parts of the respiratory passages and this difference of location depends on the solubility of the gas. If the gas is very soluble it is nearly all taken out of the air breathed during its passage over the moist surfaces of the nose and throat. Inflammation is thus limited to these localities. A sore throat and a sore nose are unpleasant but not usually very serious. Ammonia, which is used in refrigerating plants, is a typical soluble irritant gas. A low concentration of ammonia will irritate the nose, but even a high concentration will not hurt the lungs.

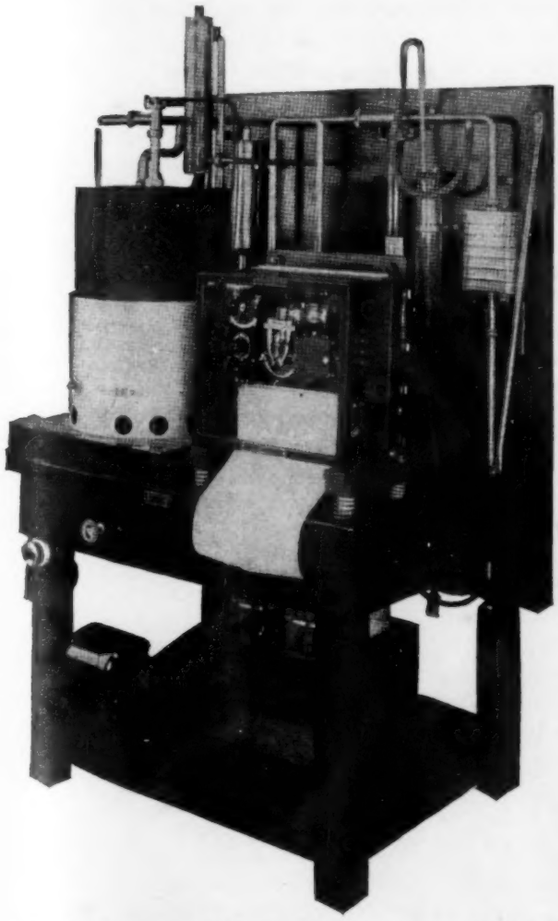
Gases that are somewhat less soluble than ammonia pass further into the respiratory passages before they are absorbed and while they irritate the nose they may also irritate the bronchial tubes. Their action is therefore more serious and they are poisonous in lower concentration. The deeper the inflammation extends into the respiratory passages the more serious are the consequences of the inflammation; the relations are similar to infections in this order: the head cold, bronchitis and pneumonia.

The moderately soluble gases include sulphur dioxide, which is used in refrigerators and is the irritant principle in coal smoke. In this

same group is chlorine, which is used to disinfect water and sewage. Both of these gases, like ammonia, irritate the eyes and nose in concentrations much lower than can do serious harm. Warning is thus given of their presence usually in adequate time to allow of escape in safety from the contaminated atmosphere.

There are two irritant gases that do not give this fortunate warning of their presence; they are phosgene and nitrogen dioxide. Neither one of these gases is used in any household appliance; they are only produced accidentally. Phosgene is a colorless gas that arises when carbon tetrachloride comes in contact with a heated surface. Carbon tetrachloride is used as a fire extinguishing fluid, "pyrene" for instance, or as a noninflammable dry cleaning fluid such as "carbona." Carbon tetrachloride is safe for either of these uses if precautions are observed. It should not be used as a fire extinguisher in closed places such as mines or subways, and if it is used indoors the windows should be raised at once.

As a dry cleaning agent carbon tetrachloride, even though it is noninflammable, should be treated as if it were inflammable and not exposed near an open flame, for if it is phosgene may be evolved.



An instrument that records continuously the amount of carbon monoxide in the air. Such instruments are used in the vehicular tunnels under the Hudson River and indicate the extent to which the air is contaminated by motor exhaust gas.

Nitrogen dioxide is a brown gas which is evolved when nitric acid is spilled on organic material, when celluloid is burned or when dynamite is exploded.

Both phosgene and nitrogen dioxide are only slightly soluble. When inhaled they pass into the lungs before they are entirely absorbed. They injure the lungs even in concentrations too low to cause serious discomfort to the nose or throat. The injury to the lungs does not give rise to pain. Some little time afterward, however, inflammation starts, fluid fills the air space of the lungs and that serious and often fatal condition of the lung, edema, results.

Asphyxiant Gases

The second group of gases is called asphyxiants. An asphyxiant is something that causes suffocation and thus prevents the tissues of the body from obtaining the oxygen necessary for their activities. Asphyxia is the cause of death in drowning or strangulation, and in these cases the oxygen is prevented mechanically from reaching the lungs. The asphyxiant gases act chemically within the body to prevent the tissues from obtaining oxygen.

There are two common asphyxiant gases: carbon monoxide and cyanide. Carbon monoxide combines with the blood and prevents it from carrying oxygen from the lungs to the tissues; cyanide affects the tissues so that they cannot use the oxygen that comes to them. Poisoning by cyanide gas is rare, for this gas is used only for ridding ships or buildings of vermin, and the men who handle it take every precaution to protect themselves and to warn every one away from the locality in which they intend to work.

Carbon monoxide, on the other hand, is extensively used and produced. There are more cases of poisoning from it than from all other gases combined. Carbon monoxide is the poisonous element in illuminating gas, flue gas, smoke and automobile exhaust gas. Carbon monoxide is of itself odorless although it is frequently mixed with other gases or vapors which smell strongly, as in the case of illuminating gas or smoke.

Each year in this country there are several thousand fatal cases of carbon monoxide poisoning in or about homes. Most of these poisonings are preventable and most of them are due to carelessness or to ignorance. Illuminating gas is the commonest cause of carbon monoxide poisoning, and one of the greatest contributing factors toward this poisoning is the flexible hose used to connect heating appliances to the gas outlet. Such connections wear out and leak or they are accidentally pulled off.

The gas company has no jurisdiction over the use to which the gas is put after it has passed the meter. The responsibility of the purchaser starts then, and he may if he is careless use flexible hose or defective and loose fixtures, let the kettle boil over and put out the flame in the gas stove, hang his trousers on the gas cock while he takes a bath, allow the children to play with the gas stove, or do any one of the various things that swell the number of newspaper accounts of asphyxiation by carbon monoxide.

Poisoning by flue gas from coal burners is much less common than poisoning by illuminating gas. When such cases occur one of two things can usually be looked for with reasonable assurance: either the dome of the hot air heater is cracked, allowing the gas to escape into the heater pipes and from there into the rooms, or else two stoves, usually a furnace and a hot water heater, have been attached to a common flue. In the latter case, if one of the heaters is not in use, the gas sometimes comes down the cold flue and escapes into the house through the draft openings instead of going up the chimney.

Danger in the Closed Garage

Automobile exhaust is receiving increasing attention as a source of carbon monoxide poisoning. City health authorities have at times become disturbed over the amount of this gas poured into the air of the streets and traffic policemen have had their dispositions unfavorably influenced by inhaling it. The contamination of street air by carbon monoxide has not yet reached a critical point; the danger of being run over by the automobile is still much greater than the danger of being poisoned by its exhaust.

Such is not the case, however, in the closed garage. In spite of repeated warnings an occasional person, usually with fatal consequences, tries to warm up the engine of his car with the doors of the garage closed. Under such conditions the concentration of carbon monoxide in the air soon rises dangerously high. The gas, moreover, gives no warning of the impending danger to the occupant of the car. The first realization of his danger often comes as an inability to move, and thus his escape is prevented.

Volatile Gases

The third class of noxious gases, the volatile drugs and anesthetics, includes all volatile poisonous liquids whose vapors may be absorbed into the body by way of the lungs. This mode of entrance into the body is just as important as is entrance by way of the stomach. If a person is careful not to put wood alcohol, benzol or gasoline into the food he eats, he should be equally careful not to put such substances into the air he breathes. It is less unpleasant to inhale the vapors of evaporating gasoline than it is to drink the fluid, but whether it enters from the lungs or from the stomach the gasoline passes into the blood.

Wood alcohol poisoning from inhaling the vapor is just as serious as is poisoning from drinking wood alcohol, though less common. If there is any likelihood of a volatile substance, such as that evaporated from paint, paint remover or gasoline, getting into the air of a room the windows should be opened to allow free ventilation or else the whole procedure should be carried on outdoors. The intensity of the smell of such volatile substances is no indication of their poisonousness. Thus the faintly smelling benzol used in some paint removers is far more poisonous than are the choking vapors from some of the quick drying lacquers now extensively used in amateur home decorating.

The safest rule in any case is: If you wouldn't drink it, don't breathe it; open the windows, or, better still, do your painting, paint removing or dry cleaning out on the side porch.

SIMPLE LESSONS *in* *Human Anatomy*

By B. C. H. Harvey

LESSON VI, Cont.

Growth of Bone

IN ALL growth old tissue is being used up or destroyed and replaced by new; destruction and construction cooperate. In bone the destructive part of the process is especially striking because the tissue being made over is so hard and because it is made over without any interference with its use.

The first bone appears in the middle of the femur when the embryo is 50 days old. Before that time the femur is all cartilage (fig. 48). About the forty-fifth day an ominous change takes place in the middle of the cartilage (fig. 49). It begins to soak up lime salts from the fluid around it and some of these are precipitated in it. This is fatal to cartilage; it becomes rigid and can grow no more. The cartilage cells are cramped in rigid cavities and are poorly nourished. They manage to enlarge the cavities a little by dissolving those walls that lie toward the ends of the cartilage. Adjacent cavities are connected and the cells may divide a few times. Thus in this central area columns of dying cartilage cells lie imprisoned in parallel tubules running lengthwise (fig. 49).

At the same time the envelop of connective tissue that surrounds the cartilage changes, also at the center. Its cells increase in number and it lays down on the cartilage surface a membranous band, surrounding the center of the cartilage as a napkin ring surrounds a napkin (fig. 50).

This band is the first stage of bone. For a brief time it is clear and transparent; then connective tissue fibers appear in it and it becomes a fibrous membrane with many connective tissue cells lying on its outer surface. Lime salts infiltrate it and are precipitated all through it and around the cells. This makes true bone of it. Meanwhile, another layer forms outside the first, going through the same changes. Thus a cuff of bone, with its characteristic alternate layers of fibers and of cells infiltrated with tricalcium phosphate, is formed round the center of the cartilage.

This cuff then extends toward both ends, and it gets thicker by formation of additional layers on its outer surface (fig. 51). Blood vessels run between the layers as they form and grow. And so the cartilage cells in the center are still further imprisoned. They die and become liquid. Into the fluid-filled cavities of the cartilage so formed extend loops of blood vessels from the vessels in the cuff of bone. Near these invading blood vessels the calcified cartilage dissolves in every direction, leaving large irregular cavities (fig. 52).

Young connective tissue, containing many active cells, comes in with the blood vessels. It proceeds to lay down on the inner surface of the irregular cavities layers of bone, just as it did on the outer surface of the cartilage, only the successive layers deposited on the walls of the cavities make the cavities progressively smaller, whereas those around the outside make the bone progressively larger. The ends of the cartilage cavities are not walled in by bone layers, only the sides. The blood vessels extend at the ends, growing into the cavities. From the center these processes extend toward both ends of the femur.

Stephen Hales (1677-1761), curate of Teddington, England, who discovered how bones grow in length and many facts concerning the blood circulation.

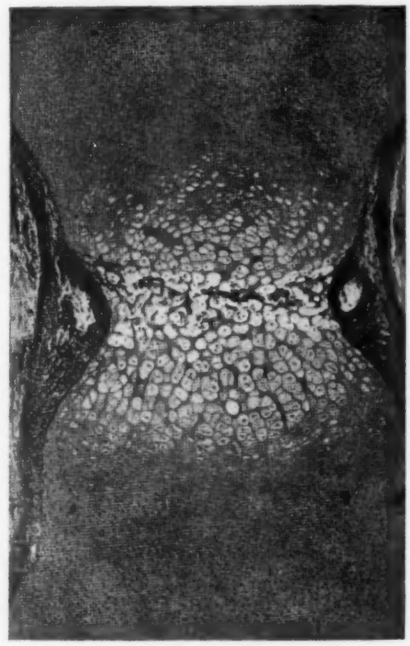
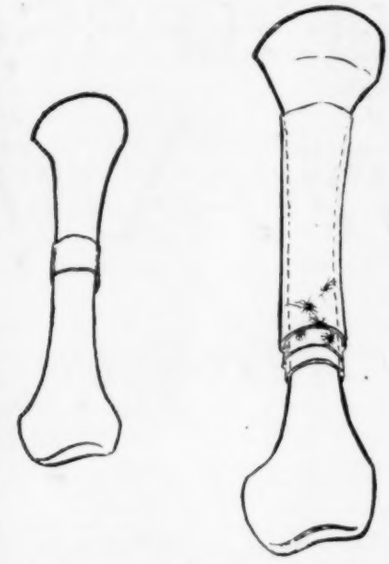


Fig. 49.—Cartilage being destroyed and replaced by bone in the middle of the bones, at the end of the second month of embryonic life. (From Bouin's Eléments d'Histologie, vol. 1, Librairie Félix Alcan, Paris.)



Figs. 50 and 51.—Band of bone around the middle of an embryonic cartilage, at the third month of embryonic life (left). In the figure on the right the cuff of bone has extended toward both ends and has become several layers thick. Some bone cells are shown between the layers.

Fig. 52.—Invasion of the middle of cartilage by connective tissue and blood vessels, under the band of surface bone. At the point X, there is a hole in the surface bone through which the blood vessels enter. (From Rauber-Kopsch's "Lehrbuch und Atlas der Anatomie des Menschen," ed. 13; published by Georg Thieme, Leipzig.)

Fig. 53.—Femur at the age of 13 years, showing the position of the cartilaginous growth plates between the shaft and the ends. (From Fischel.)

Fig. 54.—Human fetus at the fifth month, made partially transparent. (From Fischel.)

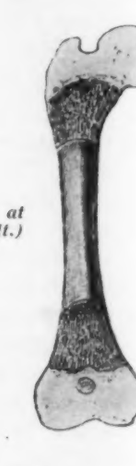


Fig. 55.—Femur at birth. (From Toldt.)

Fig. 56.—Femur of a baby, 9½ months old. (From Toldt.)

It will be noted that there are three processes: the cuff of bone is extending toward the ends as it thickens; the cartilage is becoming calcified as it dies; the young connective tissue is invading the cartilage cavities and changing into bone. All three advance together with equal speed. The center at which all three processes begin is called a "center of ossification."

As these processes extend rapidly toward both ends, the cartilaginous femur is evidently doomed unless it can grow fast at the ends (fig. 54). But it can. Rapid growth is a specialty of cartilage. It can grow much faster than bone, and it grows in thickness as well as in length. That is how all long bones become larger at the ends. When young they have a dumb-bell shape (fig. 52). The big ends are made of pure cartilage until a week or two before the baby is born (fig. 54). But not much of them can remain cartilaginous for a long time after birth, because if a considerable part of the femur were made of cartilage in a child he could not walk and run.

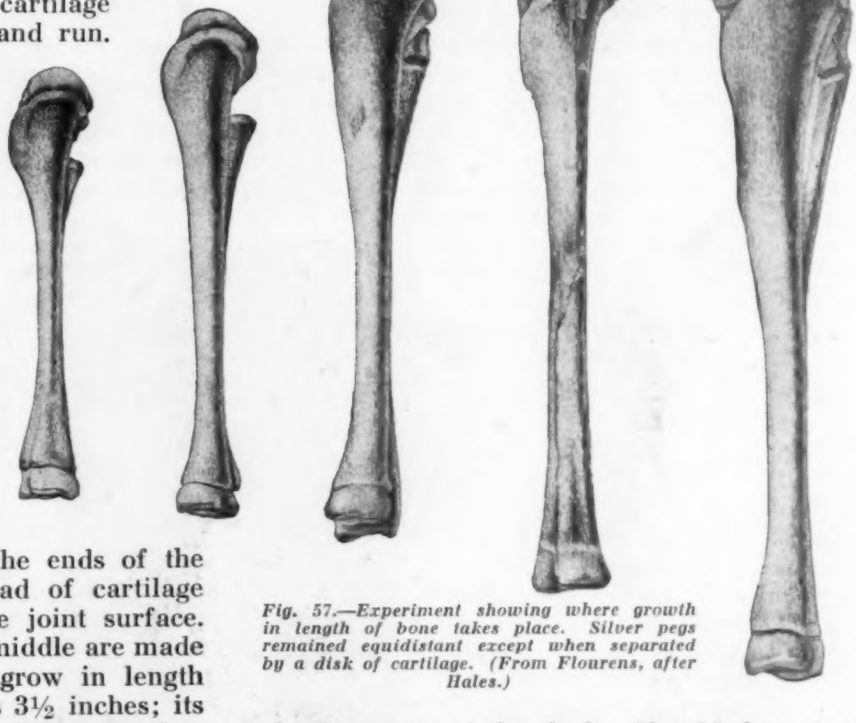


Fig. 57.—Experiment showing where growth in length of bone takes place. Silver pegs remained equidistant except when separated by a disk of cartilage. (From Flourens, after Hales.)

Cartilage is not rigid enough to support his weight firmly. It does all right in a primitive shark or sturgeon because all the weight is borne by the water and its body needs to bend in swimming. This characteristic would not serve at all in the femur of an active boy. He does not want his femur or any other bones to bend; he relies on their rigidity. They must be especially rigid near the joints where muscle tendons are attached in the greatest number. It is necessary that in the active child the ends of the femur be made of bone instead of cartilage except for a thin layer on the joint surface.

But if both ends and also the middle are made of bone, how can the femur grow in length (fig. 47)? Its length at birth is 3½ inches; its length at 20 years is 18½ inches. We can understand how it grows in thickness; that occurs through the deposit of successive new enveloping bony layers on the surface under the periosteum. But there is no periosteum on the ends of the femur. The ends are in the joints and must be covered with a surface layer of cartilage (fig. 46). We have noted that true bone grows in length only as it replaces cartilage. How then can the femur be bone at both ends and in the middle and yet grow from 3½ to 18½ inches? There is only one possible way, and that is by the persistence of two disks of cartilage, one near each end, throughout the period of growth in length; i. e., up to 20 years (fig. 53).

About two weeks before birth, there appears in the cartilage at the lower end of the femur a second center of ossification (fig. 54). It develops in all respects like the first one, except that it is farther from the surface, and so fewer blood vessels grow into it. From it the three processes of bone formation or ossification extend in both directions, downward toward the surface in the knee joint and upward toward the zone of ossification, advancing from the original center in the shaft. The advance of ossification downward has not far to go to reach the end of the cartilaginous femur, but it never does reach it. There remains always on the joint surface a thin plate of cartilage which persists till it is worn through in extreme old age. The advance upward is toward the zone of ossification, which is moving steadily down from the center of the shaft. Should these two zones meet, there would be complete ossification of the lower end of the femur and growth in length would cease, but there intervenes a disk of cartilage. While on both sides this cartilage is dying and being destroyed, it is growing in the center. In this disk, there is a race between growth and destruction. It must grow faster in the center or it will be destroyed, for it is being invaded from both sides. Growth keeps ahead for twenty years.

About six months after birth, a third center of ossification appears in the cartilage at the upper end (fig. 56). Through its growth, the upper end also becomes bony, except for the joint surface and for a disk of cartilage remaining

between the bone of the upper end and the bone of the shaft. Thus two cartilage disks persist, one near each end. Both grow rapidly; at the upper disk growth keeps ahead of the invading bone for seventeen years.

These disks are precious for only in them is there any growth in length of the bone. This important fact was learned by Stephen Hales, an English clergyman, just two hundred years ago. He tried to find where growth in length of bone takes place. Little silver pegs were put in the bone of young rabbits at measured distances apart. The bones were examined one month afterward, also at two months and at three months. The distances between the pegs remained always the same, except for the pegs separated by such a disk of cartilage. These become separated by increasing spaces as the months advance (fig. 57).

Because all the growth in length takes place in these disks, surgeons are especially anxious about injuries near them in persons under 20. Such injuries are likely to hinder growth and to result in one short leg. The amount of growth in length after birth is about 15 inches (fig. 47). In a femur 18½ inches long, the length due to growth in these disks is 13 inches. Despite this great and rapid growth, the cartilage is never far ahead of the advancing ossification. The disks are thin and their surfaces are rough.

The activity of growth in general decreases greatly from 15 to 20 years. This is true also of the cartilage disks. At 17 years the upper disk grows so slowly that the zones of ossification invading it from both sides establish contact across it and then fuse, destroying the cartilage entirely. The same fate overtakes the lower disk near the knee joint at twenty. There is more activity at the knee joint than at the hip; in all bones ossification commences earlier and persists later at the more active end.

During all this period of growth in length, the shaft of the bone has also been growing in thickness, by deposition of new circumferential layers around the outside. This goes on till the end of the growth period, when the bones have attained their full diameters. The process would, unless modified in some way, result in heavy rods of bone, solid except for a very small canal along the axis. Solid rods are never as strong as thin walled tubes of the same weight and length.

Fig. 58.—Osteoclasts (indicated by lines) about to excavate the walls of a bony cavity. (From Rauber-Kopsch's "Lehrbuch und Atlas der Anatomie des Menschen," ed. 13; published by Georg Thieme, Leipzig.)

The shafts of bones become thin walled tubes by destruction of the internal surface of the wall. This begins immediately after the first appearance of the cuff of bone at the center of the shaft. While growing on the outside, it is being excavated on the inside.

The excavating is effected partly by the loops of blood vessels; we have noted that lime salts are dissolved in proximity to small blood vessels, in which the circulation is active. There are other excavators more immediately active. These are massed units of connective tissue cells. From two to forty or more fibroblasts—cells of the same kind as those that deposit the layers of bone—merge into one mass (fig. 58). Crowds have peculiar tendencies. Sometimes they destroy what their individual members have built up. That is true of these groups. They are called osteoclasts (bone destroyers). They appear to drill long tubular holes, like worm holes in wood, throughout the inner surface of the bone. In general, these holes run lengthwise, probably because the white fibers in the circumferential bone layers run lengthwise. Afterward, young connective tissue and blood vessels enter these tubular holes and proceed to put layers of bone on the walls, like wall paper. But they may put on twenty or thirty layers before they stop for lack of any more space (fig. 40). Thus the haversian systems are made, running lengthwise.

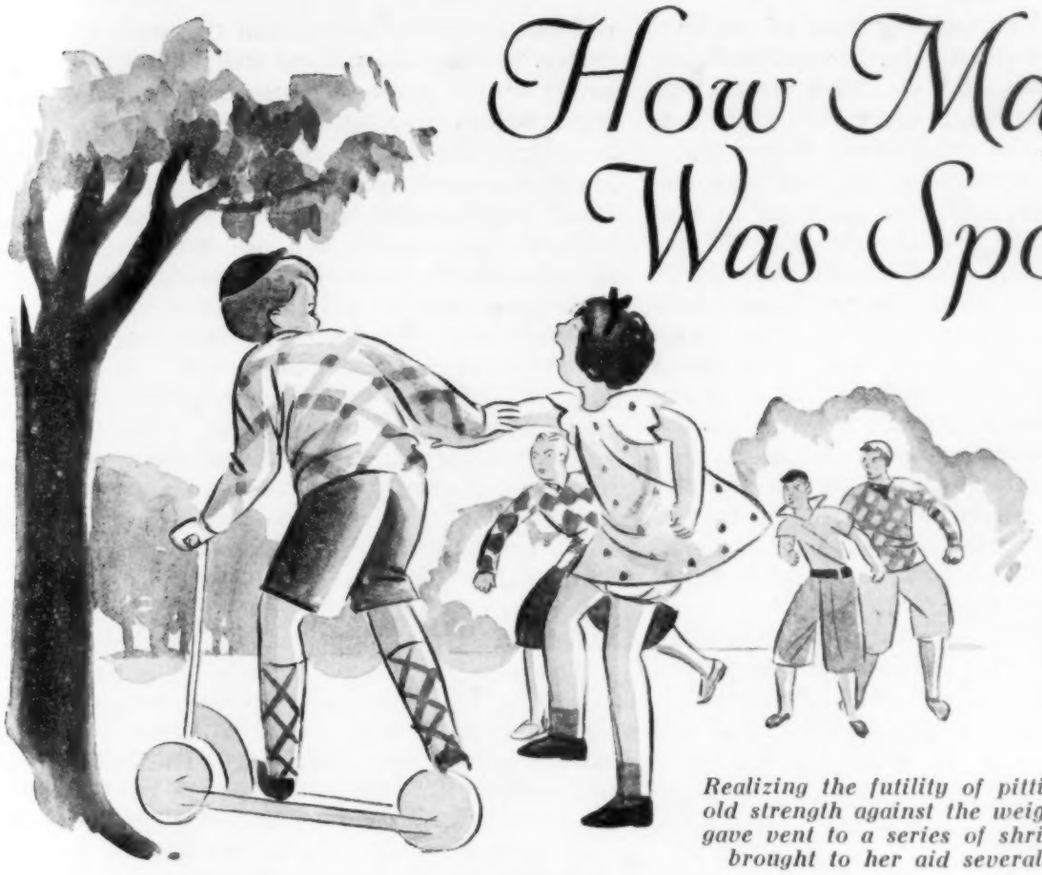
Later, more osteoclasts destroy even the haversian systems. They drill through anything that is bone. Only the outermost—and so most recently deposited—enveloping bone layers escape them. They remain active throughout life. But in old age the builder cells rest somewhat from their labors and the destroyers get ahead of them; so old bones are porous.

Throughout life, cavities are left in the center of the bones. These are among the best protected places in the human body. It is quiet in them. In these walled off caverns and connecting galleries, the young connective tissues do not build new bone. Instead, they take up their other task. Safe from interference, they become bone marrow and carry on their work, which may not safely be interrupted, of forming each day one million million new red blood cells and many thousand white blood cells.

Thus are old forms destroyed and replaced by structures better adapted to later needs.

How Maxie Was Spoiled

By Clara Bassett



Realizing the futility of pitting her 6 year old strength against the weighty Max, Jean gave vent to a series of shrill shrieks that brought to her aid several other boys.

THIS is the case of Max and shows the result of wrong handling of a child during his first weeks, months and years of life. A group of tousled children were playing on the sidewalk and all seemed to be going well until Maxie, a plump, domineering 10 year old, decided that he must have a ride on Jean's kiddie-car. Having so decided, Maxie in a masterful manner proceeded to wrest the car from the resistive Jean.

Realizing the futility of pitting her 6 year old strength against the weighty Max, Jean gave vent to a series of shrill shrieks that brought to her aid the other small boys of the group. They hated Maxie anyway and were always itching for an excuse to "muss him up," so they immediately fell upon him in great glee and wholeheartedly pummeled him. However, when he first saw the boys rushing for him, Max began emitting tearful yells of "Mama! Mama! Mama!" with the regularity of a metronome and did not cease even when he disappeared under a mass of small, wriggling bodies.

A nearby window flew up, a head emerged and disappeared, and in a few seconds Maxie's mother, administering a couple of resounding slaps to the topmost boys, reached underneath and rescued her son from the pile. She mopped his face with her handkerchief, lectured the other children for "always picking on him" and led him home by the hand, Maxie still loudly sobbing. At home, Maxie's mother, almost weeping over her bruised boy, gave him a warm bath, carefully bandaged his scratched finger, and while he was drinking a glass of milk read to him in an effort to "quiet his nerves."

Maxie was an only child. His mother had had a baby before him, but the child had died almost immediately so she lavished a double devotion on Max. During his babyhood, she had been in constant attendance upon him, anticipating his every wish. He drank his milk from a bottle until he was a great boy of 5. He was so used to his mother's constant attendance that at the age of 10, he would not go to bed alone. His mother began coaxing him to go at 8:30, but it was 10:30 or later each night before he was finally undressed and in bed. Even then, his mother must lie down beside him until he fell asleep. A small light burned all night in his room, for he was afraid without it. In the morning, his mother always helped him bathe, dress and get ready for school.

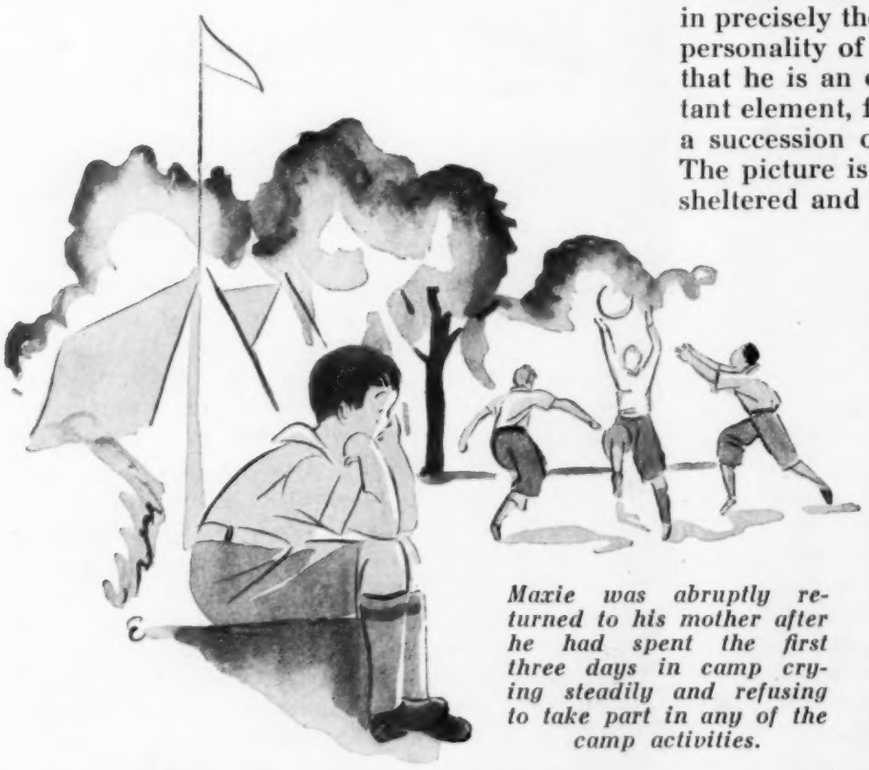
Max's preschool years had been spent solely in his mother's company. He had no playmates, for his mother feared that he would "get infections from them," and, besides, they seemed a rough lot and Max didn't "stand up for himself."

Hanging to his mother's skirts, listening to her conversations with the neighbors about the details of his diet, his sleep, his slightest ailment, Max enjoyed the sensation of being the center of his small world. He was often bored, however, so he would lie on his back on the

floor and kick and scream by way of variety; he thought it great fun to get his mother nervous and worried about him. This would frequently happen at meal time, for Max was fussy about his food and there were many things he refused to eat. His mother was frequently heard to say, "I just can't make that boy eat."

At first Max's father had shared his wife's devotion to the boy, but as the youngster grew older, he began to sense that she was overindulgent toward him and was making a great baby of him, so he thought to help the boy by being critical and more severe. As the years passed, he became more and more irritated at Max's babyish ways, and his severity widened the breach between them. As he felt more keenly the growing disapproval and disappointment of his father, Max's antagonism toward him became accentuated.

Because of the danger of crossing crowded streets, Maxie's mother always accompanied him to and from school. He was the only boy in the classroom to be so honored and the teacher tried to discourage it, but his mother replied that he "never seemed to be thinking of what he was doing, had no sense of danger and would just as soon stop right in the middle of the street as not."



Maxie was abruptly returned to his mother after he had spent the first three days in camp crying steadily and refusing to take part in any of the camp activities.

Max had hated school when he first started and begged not to go, and even at 10 had not learned really to like it. In the classroom, he stood out as an immaculately dressed youngster with an air of babyishness and dependence out of proportion to his years. The other children did not like him, called him "mama's boy" and "sissy." When he played with them, he usually broke up the game, because he insisted on bossing and on having his own way. Max had managed barely to pass his classes each year. He didn't seem to know how to go at his school work but dawdled along, writing in a smudgy, babyish fashion. His home work was always done neatly and correctly, but the teacher suspected the mother did most of it.

When Max was just 10, a neighbor had with much effort persuaded his mother to send him to a summer camp where he would learn to make friends and to play with other children. This experiment ended disastrously and Max had been abruptly returned to his mother after he had spent his first three days in camp crying steadily and refusing to take part in any of the camp activities.

The foregoing description of Max gives an insight into the plight of the spoiled child in which the process of remaining a baby is so satisfying to both the child and to his mother that both are loath to give up these immature satisfactions. All spoiled children do not react in precisely the same way, but the reactions and personality of Max are fairly typical. The fact that he is an only child is not the most important element, for in some families there may be a succession of two or three spoiled children. The picture is that of a child who has been so sheltered and hedged about that he has had no opportunity to gain experience, to grow up or to stand on his own feet. He is, at 10 years of age, still his mother's infant, utterly unequipped to make a place for himself in relation to other children his own age.

The simplest personal habits are still controversial subjects about which Max and his mother indulge in arguments, tears and temper tantrums. The habit of dressing himself Max should have begun to learn when he was 2 years old. The habit of eating his meals happily, unquestioningly, and at regular intervals should have been established in the first weeks of life and at 2 years he should have been feeding himself and learning to drink his milk from a glass. Acceptance of a definite early bedtime hour, the ability to go promptly to sleep alone in a dark room should have been a habit reaching back to his first months.

The child's success in adjusting himself to the great events of his first days at school and his future happiness there largely depend on the way in which he has been handled at home in the first five years of his life. If his preparation

has been entirely inadequate, his school life will be filled with needless difficulties, griefs and pitfalls.

Besides a fundamental background of regularity and self-control in personal habits of sleeping, eating, washing, dressing and elimination, the child must have, before he is equipped for school, an opportunity for rich experience in many other fields. As the capacity to get along amicably with a variety of other people is an important asset in life, the child from his earliest years must have the opportunity to play a great deal with other children, learning in this fashion to know other children and to carry on play cooperatively with them.

Traits of independence, fearlessness, self-reliance and initiative have to be encouraged during the second, third and fourth years, if the child at 5 or 6 is to start off adequately prepared for school days. This means the youngster must have varieties of play experiences. Beads and strings, crayons, pencils, blunt sissors and plenty of scratch paper and old picture magazines help the child develop motor control and coordination. Hammer, nails and old boards help to broaden the child's experiences, stimulate his imagination and develop his muscles. Adequate yard space in which the child may run, jump, dig and climb, and play facilities such as roller skates, scooters, wagons, velocipedes and balls are aids in developing a feeling of adequacy and courage, as well as speed and accuracy of muscle coordination.

As a small child Maxie was often bored and would lie on his back and kick and scream by way of variety.

It is easy, then, to see how truly impoverished is the child who is spoiled. Max started to school with no such background of experience. He had no technic for playing with other children or for using his body with joy and self-confidence. He was awkward, fearful, easily discouraged and ill tempered with the other children.

Spontaneity of interest, initiative and the capacity for experimentation had not been cultivated in Max and the days went by for him on drooping wings.

Because he has for so long been the absorbing center of the home stage, he runs the risk of seeking to maintain this position wherever he goes later. Because his every wish was catered to in childhood and his every complaint given prompt attention, Max will probably always expect such a response on the part of the environment in which he finds himself and will be resentful and rebellious when it is not forthcoming. His early lack of free contacts with other children will probably result in his developing into a self-absorbed, selfish individual, lacking in quick social feeling, sympathy and consideration for others.

Most of the habitual reactions that Max had learned in his first five years of life, instead of being healthy ones on which he can successfully build, are harmful habits and attitudes that he will painfully have to tear down and readjust, resulting in a tremendous loss of time, dissipation of energy and perhaps permanent injury. Strange to say, the spoiled child usually gets no sympathy or constructive help from the parents who have made him what he is. After systematically spoiling the youngster during his cunning early years, parents become impatient and sternly critical as the child grows up and becomes more difficult. They confidently expect him to assume adult modes of behavior suddenly and sensibly when he reaches a certain less engaging age, in spite of the fact that all their training throughout the earlier years has encouraged the opposite type of response.

It is through the study of the adjustment of the individual child in his early school years that we learn the importance for personality development of the earliest days of child life.

Many persons go through life carrying their "spoiled child" attitudes with them, and this often results in great misery to themselves and to others. Many spoiled children develop nervous and mental breakdowns later on in life when they find that they are not equipped to meet bravely the vicissitudes and responsibilities of adult existence.

HYGEIA
THE HEALTH MAGAZINE
Published by the American Medical Association
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Plain Facts about Health and Disease

IS IT HOT ENOUGH FOR YOU?

THE effect of weather on health and on disease has intrigued the mind of man ever since human beings have had intelligence enough to become aware of changing winds, sunshine, rain, snow and similar tricks of the elements. As one travels about one hears street car conductors cogitate sagely as to the unhealthfulness of the current variety of weather, and every old inhabitant can trace direct connections between barometric pressure and the increase in rheumatism. Even Noah Webster, who compiled the dictionary, was known for a profound work in two volumes on the epidemiology and meteorology of the United States, in which a startling amount of clear observation was intermingled with an equally startling amount of bad scientific analysis.

Recently several observations have been published on the relationship of the seasons and the weather to disease. For instance, Vedder points out that typhoid fever has its greatest incidence in late summer and early fall, because people are very thirsty in summer and they drink more or less carelessly and largely of water, milk and other beverages from questionable sources. Typhoid fever is carried chiefly in contaminated food, water and milk. In the United States it is not infrequently associated with the summer vacation, when city dwellers go into country districts in which sanitation has lagged far behind. They often drink water from springs contaminated by drainage from sewage disposal places.

Some years ago the National Research Council made a study of the relation of the weather to deaths in New York City. It found that the highest death rates occur on cold days and that the most favorable temperature for health is between 60 and 75 F. Following a cold and rainy spell in which there is widespread exposure to the elements, the respiratory diseases, such as coughs, colds, influenza and pneumonia, increase in number and in severity. Most epidemiologists are willing to admit that there is a definite relationship between exposure and the catching of a cold. Apparently the exposure lowers the resistance of human beings so that the germs responsible for the respiratory infection may invade the body. Many times the diseases that have been mentioned occur without exposure. In such cases, of course, the virulence of the infecting organism is such that it can attack the body even in the presence of normal resistance. In cold weather, moreover, there is a great tendency for human beings to crowd together in overheated places, under which conditions there is much more likelihood of the contaminated secretions of the nose and throat of the infected individual reaching other persons.

In hot weather mortality increases as a result of prostration from heat and sunstroke. Infant mortality increases because the germs causing infections of the intestinal tract increase rapidly in milk not properly protected against heat. Vedder points out that there is also a much more widespread dissemination of dust carrying infectious material in summer than in winter weather. Efficient sprinkling of streets before sweeping tends of course to check this source of infection to a considerable extent.

Recently investigators have shown a definite relationship between changes in the temperature and the humidity and the pains in the joints that persons with arthritis feel just before the weather changes. It is already well known that the human body is both a physical and a chemical organism and that physical as well as chemical conditions outside the body may have an influence upon it. The obser-

vations of thousands of years are not, of course, to be thrown lightly into the discard. One of the chief functions of modern science is to explain adequately the well founded beliefs of the past.

WHO CARES FOR THE SICK?

THE majority of illnesses can be given competent medical care by a good general practitioner with the amount of equipment that he can carry in his handbag. The commission on medical education in its first survey of the nature of medical practice in 1927 pointed out that the work of a general practitioner in a town of 50,000 population, included 55 per cent of practice in the home, 35 per cent of practice in the office and the remaining 10 per cent in the hospital. A study of the kind of work done by physicians revealed the fact that 90 per cent of the disease seen by general practitioners concerned conditions which could not be controlled on a community basis but which demanded personal medical attention.

More and more as the science of medicine has advanced physicians have tended to specialize and many persons now consult specialists directly rather than through the family practitioner. More and more physicians have tended to rely on the accessories secured in hospitals and laboratories for aid in diagnosis and in the treatment of disease. As a result there have been built around the practice of medicine a considerable number of important industries.

Many of these industries exist primarily not for the care of the sick but for the reason that caring for the sick is an occupation. Today approximately 150,000 physicians assume responsibility for the diagnosis and treatment of disease among the people of the United States, but about a million other persons, including nurses, orderlies, pharmacists, cooks, dietitians, laundry workers, technicians and similar helpers are also involved in this service. All too frequently there is a tendency to discount the application of trained knowledge given by the physician in his brief contact with the patient and to assign to these auxiliaries of medical practice much of the credit for the recovery from illness. It must be remembered that the physician is responsible for the patient as a human being and not for any one organ or for any one process used in the diagnosis and treatment of the patient. When medicine becomes too highly organized, when the vision of the ailing human being becomes so myopic that he is seen no longer as a man but only as an organ, then there is danger that the real art of medicine will be lost and with it much of its humanity.

As a part of the trend of the times in the care of the sick—the development of specialization, group practice, general and special clinics, etc.—there has been a tendency for corporations of laymen to attempt to organize medicine as a commercial venture is organized, with physicians as salaried employees of a medical business. Physicians have opposed such developments in many instances because they seemed against the best interest of both the public and the medical profession. Obviously any system that causes in the physician loss of initiative, loss of professional pride although not necessarily loss of false dignity, loss of his sense of responsibility to the individual patient, is not for the good of the public. The physician who is responsible for one small manipulation in relationship to one organ of an ailing body will not have the same sense of responsibility in the case as has the physician who is striving to restore a human being who is his patient to a healthy working condition.

During the last quarter century about 6,000 clinics have been developed in the United States. The list includes teaching clinics, diagnostic clinics, charity clinics, part pay clinics, pay clinics, venereal disease clinics and what not. Every day new schemes are offered for the conduct of those already established and for new ones to be established when private donors become available or when the situation seems right for private capital to exploit the clinic system for personal gain. All sorts of controlling bodies exercise leadership in the management of medical institutions including hospital boards, academies and institutes of medicines, lay boards of bankers, executive directors and walking delegates of unions, charity boards and university trustees. Truly it may be said that medicine is becoming everybody's business.

Regardless of what system of medicine may be developed as the ideal method of practice for the future certain considerations must be fundamental. In the right system the good of the patient will always be the first consideration. The good of the patient is dependent on a forward looking, ambitious, scientific medical profession. Any scheme that destroys the pride of the physician in his work and makes of him a robot rather than an artist in his profession is bad for the care of the sick. The maintenance of the general practitioner is important for the 90 per cent of illnesses that are best and most economically treated by the general practitioner.

In the development of medical practice the rights of the general practitioner in the way of fair competition must be safeguarded. The principle of individual responsibility for the patient by some physician is fundamental. The advancement of the science and of the practice of medicine is such that more and more physicians are calling on the collaborating professions for aid in technical and nursing matters. Nevertheless it must be recognized that the responsibility for the care of the sick is the doctor's problem. Doctors, not accessories, make competent and satisfactory hospitals, dispensaries and clinics.

HEALTH HAZARDS OF TENNIS

THE little boy who used to cup his hands and shriek "Forty-love" in a high falsetto voice at the sissies who were playing tennis with the girls behind the iron fence now gapes in admiration at Tilden, Hennessy and Lott and practices forehand and backhand strokes against the back of the barn in his spare time. Tennis has graduated out of the class of minor sports into a game that requires speed equal to that of basketball, endurance equal to that for the marathon, nerves like those necessary for trap-shooting, and grace and timing like that of Bobby Jones in golf. In other words, tennis is now a sport of which no one need be ashamed and its increasing popularity since the World War bears witness to the recognition that is being given to it by the public.

Because of the requirements for skill in playing tennis that have been mentioned the game carries with it certain unusual hazards. Almost every one knows about tennis elbow. Apparently the quick motion involved in a properly played backhand stroke causes an irritation and inflammation of the tissues at the bend of the elbow. The bursa, which serves to cushion the tissues, swells and the result is pain when anything in the nature of a similar motion is attempted. Sometimes when the person reaches for a book or tries to lift a glass of water the muscles and ligaments suddenly set with the result that the object is dropped and a twinge of pain passes through the arm. This type of disturbance tends to last for a long time. Its relief seems to depend primarily on rest and on the use of heat such as can be had by baking, by the use of diathermy or by some similar procedure.

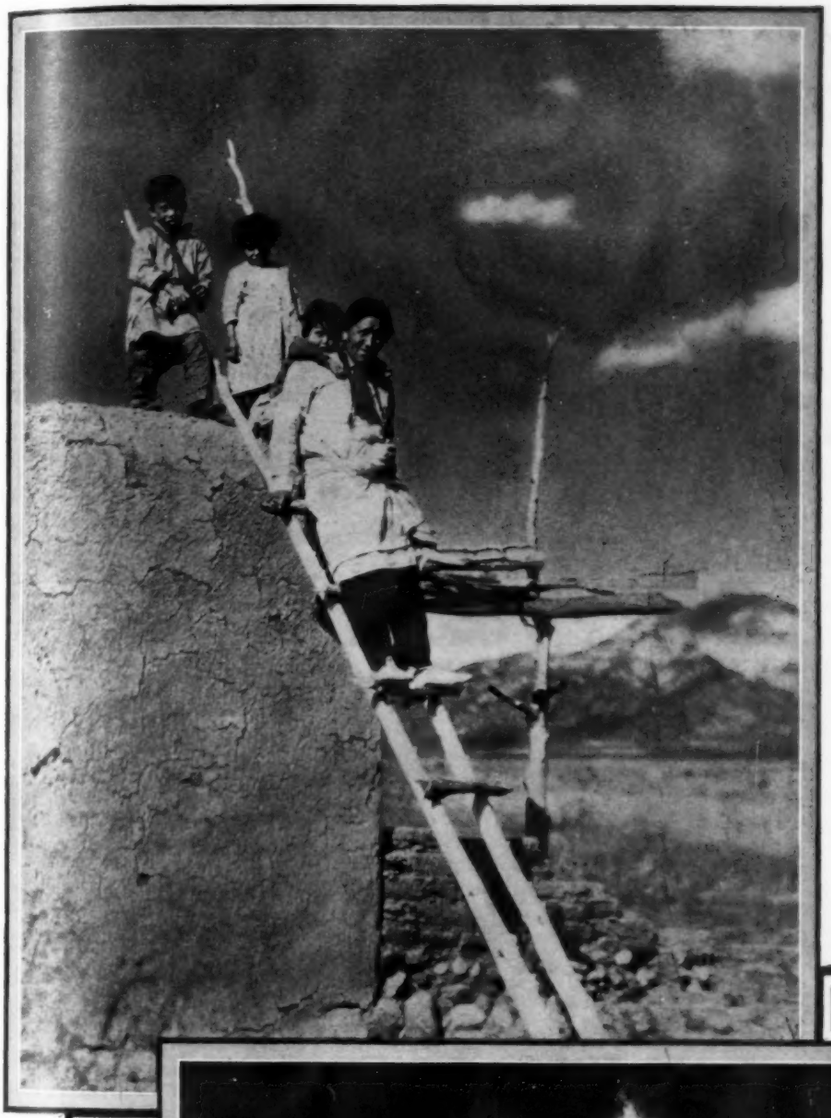
Another common injury in tennis is the charleyhorse that is associated with so many other sports. The sudden turns and strides required in tennis and the sudden strain associated with these motions may tear a few fibers of a muscle or ligament. Then a hemorrhage takes place between the fibers, and every motion thereafter is painful.

If the tennis player is willing to stop his game for a week or ten days and rest the tissues, the injury usually heals. Sometimes light massage or the application of heat will help. But if one is a professional tennis or baseball player one simply cannot wait and the result is usually a repetition of the injury and sometimes permanent trouble.

A third common type of injury is the internal derangement of the knee joint that occurs frequently in basketball and in football. A sudden turn of the knee with the foot fixed causes the cartilage between the large bone of the thigh and the large bone of the leg to crack, or a portion may even be broken off. This becomes pinched and there ensue swelling and sometimes the pouring of fluid into the joint. When the injury occurs the leg becomes locked in a semiextended position and any attempt to straighten the leg causes pain. As the swelling subsides the condition improves and motion returns, but once this derangement occurs it is likely to occur again with increasing frequency. Professionals or star players usually have the operation performed that removes the broken cartilage and takes care of the condition permanently.

Beyond the hazards that have been mentioned there is also the danger from sunstroke, overheating, dilatation of a heart not prepared for strenuous activity, nerve prostration due to the intensity of the game, and similar hazards which accompany all sports but which are particularly likely to occur in tennis because of the speed, intensity and excessive demands of what used to be a nice game for girls in long skirts.

Whenever an injury occurs to any bone, joint or tissue that interferes with locomotion the path of safety lies in a sure diagnosis of the nature of the injury. In making his diagnosis the doctor usually asks for an x-ray picture of the region concerned. Sufficient force may be exerted by the muscles of the arms and legs under the stress of intensive competition to break off fragments of bone and to cause injuries that demand complete rest for complete recovery. It is the path of wisdom to be sure of the kind of condition that is causing trouble before undertaking treatment.



A PAINTER'S PARADISE

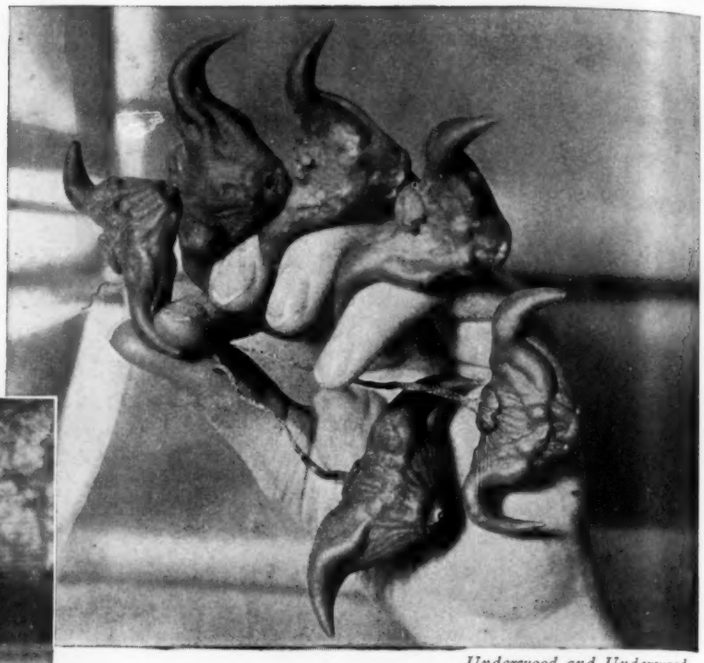
Early American architecture takes this form in New Mexico, where Pueblo Indians live in their primitive adobe buildings very much as did their forefathers many hundreds of years ago. The Pueblo mother is taking her children down the ladder from their home for a morning walk. No elevators are provided in these skyscraper dwellings.

The photographs were taken at Taos, the village from which comes so much of modern painting dealing with Indian life and habits.

Photos by Pacific and Atlantic

THEY'RE ONLY NUTS

These ferocious looking objects are not the heads of decapitated wild beasts but are Chinese water buffalo nuts, a food much enjoyed in the Orient. The nuts get their name from their close resemblance to the heads of Chinese water buffalo.



Underwood and Underwood

Pacific and Atlantic

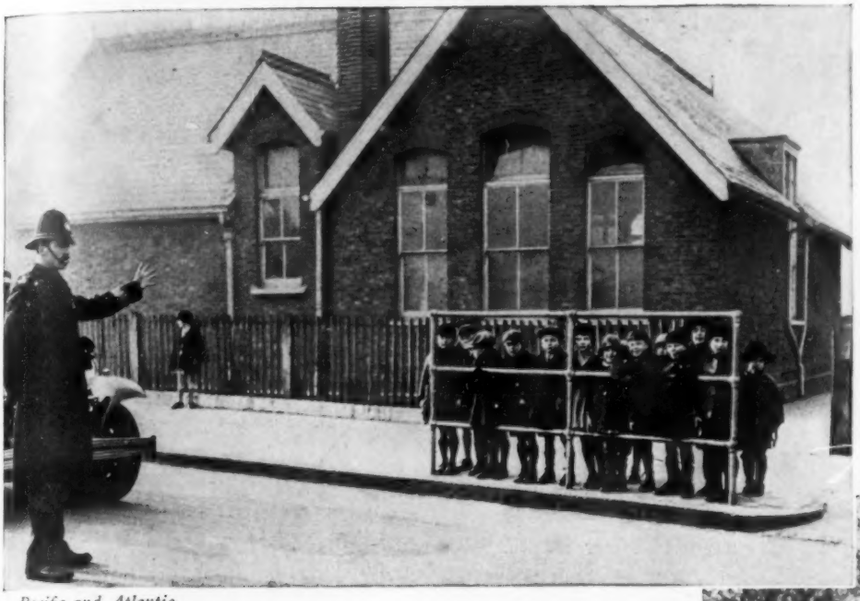
GYM SUITS—MODERN STYLE

For the first time this autumn women students of the University of California at Los Angeles will wear gymnasium suits patterned after the one at the left. The student newspaper led a campaign for reform against the old style of dress for physical education students, and the new uniform, consisting of blouse, shorts, rolled socks and sport shoes, is the result.

CALISTHENICS—OLD STYLE

A contrast picture to the one above. This is what well dressed public school pupils in Los Angeles wore in 1895, as they took part in the wooden calisthenics pictured here.

International Newsreel



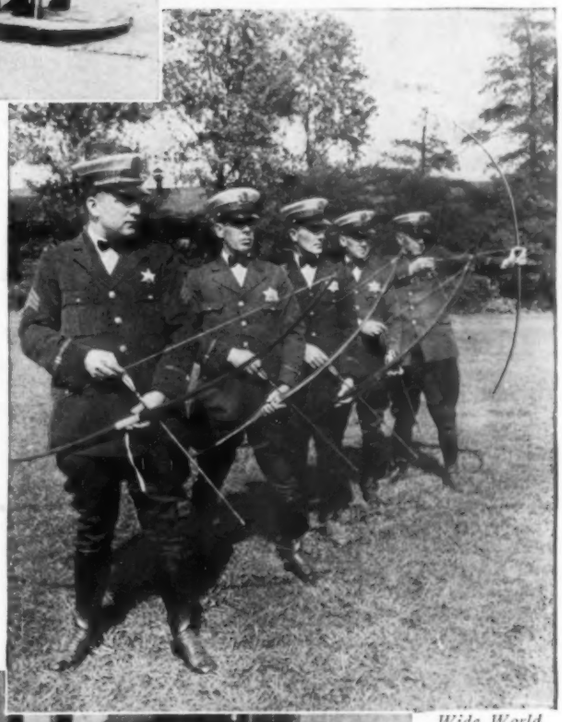
Pacific and Atlantic

WAITING AT THE POST

Children in the schools at Wallington, Surrey, a suburb of London, are now lining up behind a railing until the "bobby" stops the motor traffic and gives them the signal to cross the street. This safety-first measure has been successful in cutting down the number of motor accidents among children.

GANGSTERS, BEWARE

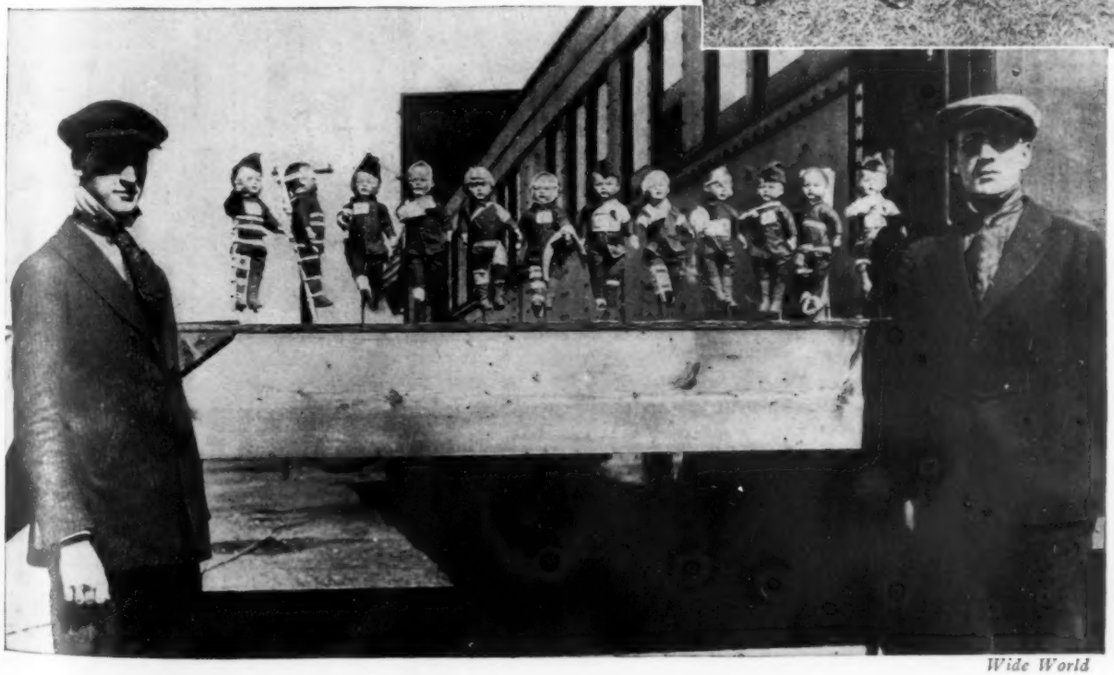
Believing that archery improves marksmanship and strengthens the muscles, the Chicago police have formed an archery class. They practice on the archery range in Washington Park.



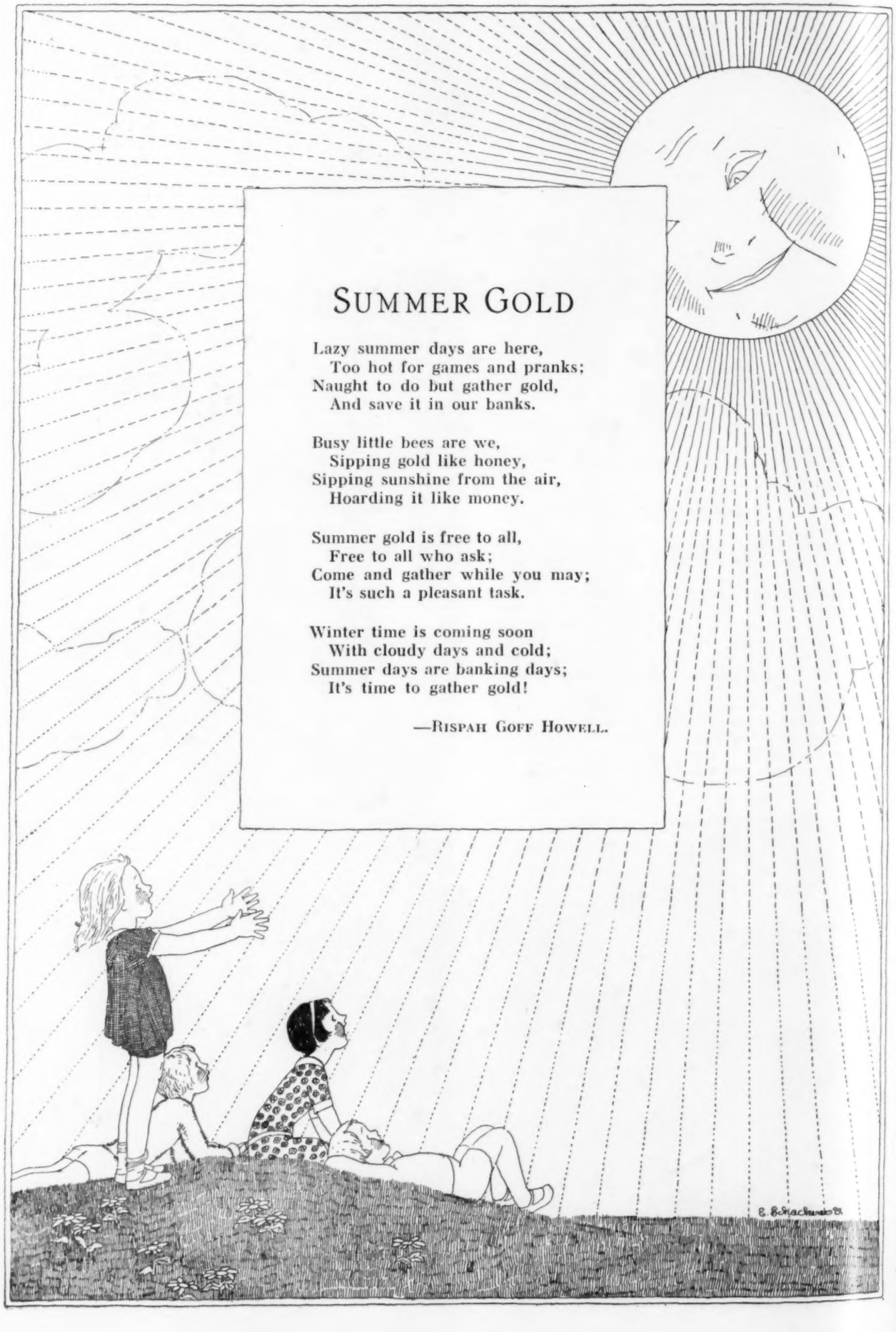
Wide World

UNCLE SAM'S DOLLIES

Probably the only government dolls in existence are those used by the U. S. bureau of mines for demonstration work in first aid to miners. For each injury that occurs in a mine there is an appropriate first aid treatment and a doll to demonstrate how it is done.



Wide World



SUMMER GOLD

Lazy summer days are here,
Too hot for games and pranks;
Naught to do but gather gold,
And save it in our banks.

Busy little bees are we,
Sipping gold like honey,
Sipping sunshine from the air,
Hoarding it like money.

Summer gold is free to all,
Free to all who ask;
Come and gather while you may;
It's such a pleasant task.

Winter time is coming soon
With cloudy days and cold;
Summer days are banking days;
It's time to gather gold!

—RISPAH GOFF HOWELL.

The Cloud Party

By

Harriet Hastings

David lay on the grass and looked at the sky.

"OH DEAR, there's nothing to do," said David, as his mother went into the house. "Play by yourself for an hour," she had told him, "and don't go out of the yard."

David felt hot and stupid. It was that kind of day. First he kicked the loose stones lying about. Then he wished he could go over and see Jimmy next door. Finally he lay on the grass and looked at the sky.

There's nothing to look at, he thought. But that shows how little he knew, for just at that moment, right over his head, the five little Clouds were coming out into their lovely blue garden.

Mrs. Cloud had said to them, like David's mother, "Now, children, amuse yourselves for a while, and don't go out of the yard. I shall be making the star cookies." And into the house she went.

It was a most important day for the little Clouds. Mary Cloud was having her birthday. She was 6. And she and her sisters and baby brother were all dressed in pretty, fluffy white dresses. They knew that the star cookies could not come out of the oven until dark, so they sat in the garden and wondered, like David, what to do.

However, when there are five of you it is easier to think of games than when you are all by yourself, and the Cloud children had a lovely game of circuses until Mrs. Cloud called them in to see her make ice cream. She made it out of the Milky Way. That was one of the chief advantages of living in the sky; you never had to wait for the milk wagon there when you wanted milk for ice cream or for breakfast.

"Now, while it freezes, go and get ready for the party. But, oh dear, what can you have done to make your white dresses so dirty! You'll have to change into your sunset dresses, that's all."

"Oooh! Goody!" shouted the little Clouds. They loved their sunset dresses.

"My pink one is the prettiest!" said Helen.

"No," shouted Margaret, "my yellow one's much nicer."

"It's my birthday, and my red's best," said little Mary.

"Wodger put on his pitty owange pants," said Roger, the smallest Cloud of all.

But before any one could get really cross, Mrs. Cloud called them down stairs. There was the table looking grand, with its snowy birthday cake and six pink candles. And just as Mary was taking her place, there came a sharp ring from the telephone.

The poor little Clouds! Just as soon as Mrs. Cloud came back they knew that something was wrong.

"Children," she said, "I've a disappointment for you. Daddy is bringing Mr. Storm home for supper. And that means that instead of giving the whole evening to your party, I have to plan a pleasant time for Mr. Storm too, for you know what an important person he is. It won't be easy without your help. First, we shall have to move your party into the garden, so that Mr. Storm can have supper inside. So come and help me clear the table right now."

"Oh dear," said the little Clouds. But they knew their mother was in earnest, so they did the best they could. They propped open the screen door and began to carry all the pretty things out onto the lawn. But such a wind had come up that the table cloth and the napkins would not stay in their places.

"What a sudden change!" said Mrs. Cloud. "The weather looks quite threatening! Children, you must put on your raincoats over those pretty dresses. Come along. Be as quick as you can! Mr. Storm must be on his way already."

But this time the little Clouds rebelled. Put on their ugly gray raincoats for a party! One and all, they began to whine.

"Oh! What a shame!"

"It's so hot, too!"

"It won't rain, Mother."

"We hate old Mr. Storm!"

"Wodger doesn't want coat over pitty pants!"

Mrs. Cloud had to be firm in spite of them. She marched off to the closet where the raincoats hung in a row, and she brought them all out.

On they had to go, so on they went, in spite of all the sniffling and snuffling going on behind the five little colored handkerchiefs. But finally Mary, whose birthday it was, hid her face in her hands and sobbed.

"I'd rather not have a party than have it in raincoats!" and the whole band of children gave way and began to howl and weep as though their hearts were broken. Roger shrieked in his high treble, Mary wailed a few notes lower, Helen cried in agonizing sobs and Margaret and Jane just shouted and roared with rage. Their tears streamed down their hated raincoats and even pattered down a few big drops into David's garden far below on earth. In fact, they made David's mother call him in out of the wet.

For a minute Mrs. Cloud simply did not know what to do. She almost started to cry herself, for she could smell the star cookies beginning to burn, and she had not even started Mr. Storm's supper, and the children just must be quiet and happy when he came. But she was one of those people who think of new ideas — that was what made life in the Cloud's house so surprising and amusing. And now, all at once, she thought of a capital plan.

She ran inside and came out with a roll of gold tinsel paper and some shears.

"Stop crying!" she ordered. "I've just remembered that I had this paper left over from Christmas. See here, Mary. We'll soon make your raincoats as pretty as your sunset dresses!"

And she began cutting out the most lovely zigzag patterns and letting Mary pin them on her coat with the special gold safety pins that the children were usually forbidden to play with.

"You may each do your own coat, and the prettiest shall have a prize," she said. And then she hurried in to the star cookies and supper.

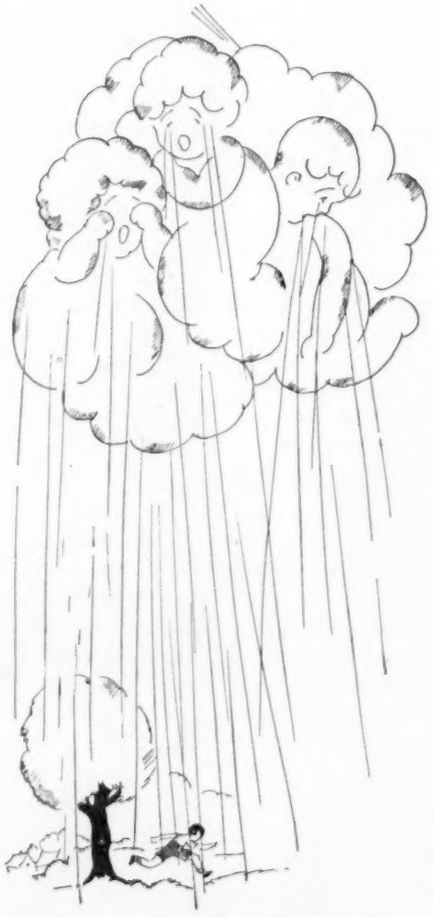
The little Clouds loved the new game at first. They pinned on the tinsel and danced and twirled about, as pleased as anything with the flashing it made. David could see the bright flashes from his window down below.

But soon Jane Cloud wanted something better.

"Let's have a parade," she said, "and then we can go in a procession and meet old Mr. Storm and tell him what we think of him for spoiling our party like this."

"Let's get a lot of kitchen pots and spoons and pans," said the resourceful Jane; "and then we can play on them and march to the music."

"Let's make a jolly good row, and p'r'aps it'll scare Mr. Storm away!" said Margaret.



The Cloud children's tears pattered down big drops into David's garden far below on earth.

So while Mrs. Cloud was tidying up the living room they stole into the kitchen and took whatever they could lay hands on. Then they made a procession up the drive, dressed in their decorated coats, banging away on their pots and pans and shouting:

"We hate Mr. Storm!
We wish he'd never been born!"

—which was not good poetry or good manners either, but then, in their excitement, the little Clouds had forgotten a lot of things.

As for David, down below at his window, he simply could not think what all the noise was about, for of course he did not know of the party. And when one of the pieces of tinsel flew off Mary's coat and shot down into a corner of his garden he was as surprised as anything.

"Come on! Here's Daddy's car! Let's hide behind the hedge and surprise them!" shouted Jane.

So when Mr. Cloud drove up with his important guest, he was greeted by a perfect babel of din. Fortunately the noise of the pans and spoons

Mary Cloud and her sisters and baby brother were all dressed in pretty, fluffy white dresses.

drowned out the words of the naughty song, but it also drowned out the words of his apologies to Mr. Storm.

Naturally Mr. Cloud was furious. He was tired and he had asked Mr. Storm to supper just because he wanted to show him his lovely home and wife and his sweet children. And then, Mr. Storm was his chief at the office. How dreadful if he should be offended at this foolishness!

What was his surprise, then, to see Mr. Storm get out of the car and go right over to the children.

"Why," said the old man, "I thought you must have the fire engines up at your place! I was sure you were the fire company. Come on! I'll be the fire chief and you can be the men, and we'll save this factory from burning! That tree'll make a splendid factory. Where's the garden hose? Here, turn on the water, children! Come, Cloud!" he called to his host, "come along and join in the fun! I have not had a good game with the kiddies for longer than I should like to say."

And they all had a most glorious game of fire engines. They had the hose and the ladder from the garage, and Daddy held up the ladder to the factory window, which was a branch of the tree, while Mr. Storm and Jane climbed up to save the night watchman, who was Mary, as it was her birthday.

By the time Mr. Storm's supper was ready most of the tinsel had fallen off the children's raincoats, and the rest of it was wet through from the hose. Fighting fires is tremendously wet work. In fact, they all agreed if it had not been for the coats, they could never have played at firemen at all.

As it was, the sunset dresses were quite safe and dry, and dear old Mr. Storm insisted on the children's coming in to have their party in the dining room with him. In the end the little Clouds had the best birthday party they ever had, all because old Mr. Storm had been asked to supper.

Meanwhile, David, down below, had watched the flashing tinsel falling, had heard the bumps and bangs and crashes, and had heard his mother say it was a real thunder storm, but it would do the farmer's crops good.

But next morning, when he ran out into the garden to look for the bright thing that had fallen down in the corner, he could not find it anywhere.

HEALTH *and the* SCHOOL

Edited by
J. Mace Andress, Ph.D.
67 Clyde Street, Newtonville, Mass.

Make of the Year an Adventure

THESE are still happy vacation days! The summer schools for teachers are closing. The whole of August and the early part of September will find all teachers and children free from school responsibilities.

Here is a rough camp on the banks of Lake Champlain with its wonderful sunsets, bracing mountain air, delightful drives and inspiring scenery. It's fun to fish, even if the really big ones get away. They do give the line a powerful tug, and one lives in the expectation of catching a new fish or a bigger fish than one has ever caught before. As one sits in a boat watching the shifting color over water and mountains and the lonely fleecy clouds drifting across the sky, the thoughts, when the fish are not too curious, occasionally jump across the interim of the few weeks that separate us from the beginning of another school year.

If your plans are all made for the opening of the new school year, you may not be interested. Let us hope you are not like the one-time popular professor at a German university who found his classes gradually diminishing until only a handful was left. He complained to his wife: "I can't understand it. They are the same lectures I gave thirty years ago. Then my lecture rooms were filled to overflowing." There are altogether too many superintendents, principals, supervisors and classroom teachers who fish out of the pigeonhole or files the plans or outlines that they used the previous year. It is the resort of the lazy minded and bears fruit in a deadening of interest, initiative and general efficiency.

When to Begin

Where should we begin in September? That will depend on where we left off. One's program for the year should be the outcome of the cumulative experience of previous years, of one's reading, observation and estimates of failure and success. The supervisor or teacher of health education should approach his work every fall with a clearer notion of attainable ideals. He should ask himself the following questions:

What were the successes of the previous year? What were the failures of the same year? What were the causes of successes and failures? Were the failures due to poor or impossible ideals, to a lack of enthusiasm, to poor planning, to untrained workers? Should there be a new and vigorous attack in attempting to solve old problems? Are there new problems that have not yet been attacked? How have they been solved or how are they being solved by other communities?

Health Problems

What is being done to get the children ready for school in the fall? Are the school nurses and school physicians under proper supervision? Are they accomplishing as much for the health of children and teachers as they should? Are the underprivileged children getting a fair chance? Can we do more for the health of the teachers? Does every teacher in the school or system realize that every instructor should be concerned with the children's health? Are the teachers teaching children or subjects primarily? What may be done to give the teachers a better insight into the subject of mental health? Is the course of study in hygiene in harmony with modern education and psychology or does it reflect the philosophy of a bygone day? Is it helpful? Is it a mere outline of subjects to be taught or does it give suggestions to the teacher as to method, bibliography and materials? Is it dull and uninteresting or is it so attractive that it would tend to make the teacher feel like teaching health?

Am I a good teacher? What are my strong and weak points? How may I improve? How may I improve my work this year so that the children will be in better health physically and mentally than they were the last year? How may I improve in mental power and poise and physical health so as to carry on my work more successfully? What new health books shall I use in my teaching this year? How can I make the study of health more interesting? Do I know as much as I should about the physical and mental handicaps of my pupils? What am I to do about it?

The foregoing questions are only a few that the health supervisor or teacher might ask himself. Try them on yourself and then ask yourself other questions. As a result of such reflection, formulate some kind of program that will incorporate the plans, methods and principles that have been successful in the past, but let it have some kind of reorganization reflecting your own growth and development in the field of health. Hygiene is a rapidly growing subject. Not only is it changing rapidly from the point of view of subject matter but the literature on the teaching of health is increasing by leaps and bounds.

Where do we begin in September? Let us be critical of ourselves and of our procedure. Let us try to get out of ruts that no longer have significance. Let us strive for a higher efficiency in a way that the year's work will be an adventure. If it will be an adventure for us, it will also be an adventure for the boys and girls whom we direct. It is bound to be interesting and it may be even thrilling. Begin to plan your year so that it will be a real adventure.

FROM THE MAIL BAG

The editorial in the school department of the February HYGEIA entitled "Wanted: Trained School Physicians and Nurses" has stimulated the writing of many letters from the field. Two that are typical are reprinted:

THE TRAINING OF A SCHOOL PHYSICIAN

"Certainly the school physician needs more training than the regular medical education. An additional year of special training in a university of recognized standing would be of great value.

"But that is not all. After the best of college and postgraduate

courses have been finished, the school physician must continue to grow. It is not enough to have had all the courses required for a finished product in 1929 and then settle down with a feeling of well being—a little rut will develop and in 1939 you will be out of date.

"The school physician should belong to two or more medical societies—one of which is devoted to the problems of medicine, not primarily a health organization. The school physician should not only belong to these societies but should contribute to them, and from time to time should call to the attention of the medical profession observations made in examining large numbers of boys and girls.

"Certainly we are to teach health, but let us not forget that our schools are filled with boys and girls with unrecognized defects, some already showing destructive marks of past infections and some handicapped for life. These children must be instructed how to correct and mend these defects before a health ideal can be attained.

"The school physician must be a good diagnostician, abreast of the very latest in the field of medicine.

"And the salary for this super man or woman! Ah, there is the rub! With a long and expensive training and the expense of affiliation with the medical groups, is the salary adequate?

"The teacher has a less expensive training and the chance for promotion is greater. The high school teacher is paid more for less hours of work. School principals, supervisors and heads of departments are better paid than the school physician. Professional organizations and clubs for teachers are less expensive. Teachers are hired by contract, which gives them a more stable position. They have less calls for charity.

"If the doctor has dependents, he cannot live on the school salary alone, but must have a private practice with shorter vacations, giving him less time for study.

"Yes, the school physician needs another year of training, but he also needs to be constantly improving and he also needs adequate pay."

THE PROBLEMS OF A SCHOOL NURSE

"I want to assure you that I most heartily agree with you, that school nurses as a whole have no adequate preparation for the work they are expected to do and should be prepared to do.

"I recall my bewilderment on first attempting to do school nursing, for the four months' special instruction I had received had given me but a faint idea of what I was to do. Later I took a course at another institution, planned particularly for the school nurses, where I hoped to get a little information on teaching health, but that subject was quickly covered when the instructor remarked 'We will leave that for the teachers.'

"In this rural section I have practically no contact with school physicians, so am not familiar with their problems. There are two nurses in small towns in the county doing school work, and we three meet occasionally to discuss our work and problems. Of course I realize this is an extremely limited contact, but we try to keep up with what is being done elsewhere by reading nursing and medical journals and attending conventions, such as that of the tuberculosis association. Perhaps my greatest help has been from the school teachers, by observing projects different teachers have planned to interest the children in health, and stealing these ideas for some other school.

"If you can do anything toward hastening the day when there will be courses offered where nurses may receive adequate training for the work they are expected to do in schools, I am sure all nurses will be grateful to you."

TEACHING HEALTH

(In this column will be published each month concrete examples of good health teaching. Teachers are invited to send in contributions not exceeding 600 words and preferably less to the editor of this department. Illustrations of the actual work of children will be welcomed. Contributions accepted will be paid for but no manuscripts will be returned.)

A HOT BREAKFAST IN A SECOND GRADE

IN STRESSING the need of a hot, nourishing breakfast in my second grade, an interesting project developed in which the children actually cooked and served a miniature breakfast in the schoolroom.

In hygiene period we planned a suitable breakfast menu, decided the portions each child should bring, and chose those who were to take charge of the cooking, lay the table and do the dishes.

Our menu consisted of sliced orange, oatmeal with sugar and cream, buttered toast, poached egg and milk.

The food, tablecloth, napkins, silver and dishes were brought by different children, so that each child had a part and personal interest in the project. A large doll was the honored guest at breakfast. There was even a rosebud to adorn the table.

The children cooked on a toy electric stove, in the aluminum utensils that accompany it.

Later, in language class, the children wrote individual stories about our breakfast, and the results were splendid. They learned to spell the necessary words in spelling class.

I believe that my boys and girls derived a great deal of benefit from this project. They still take pride in telling the class and me about the hot breakfasts they have at home, their nicely laid tables and well served food.

WILMA S. BARR,
212 N. Sherman St.,
Crown Point, Ind.

CAPTAINS OF HEALTH

THE Health Club in Hammond Technical High School was started with the idea of establishing a more direct method of teaching health to all students and of making a closer contact between the students and the nurse. A high percentage of defects (almost 200 per cent in this school), the long hours of the school day, and the many chances for infection through the shops, make it more than necessary that prevention of sickness be stressed.

Our present plan provides for a health club meeting each Tuesday afternoon for a session of thirty minutes. A representative from each room in the school, whom we call the health captain, attends these meetings. These students are chosen because of their executive ability, conscientious work and interest in health. It is considered an honor to be a health captain and few substitutions have been made.

On Wednesday morning, a fifteen minute period is given over to the health program that was planned at the meeting the afternoon before. Some of our most successful topics have been: prevention of colds, what we can do to make our school more healthful, safety rules, mental hygiene for the high school student, and an occasional debate, such as "Resolved, that the Tech girl dresses in a more healthful manner than the Tech boy." During epidemics of diphtheria and smallpox, we discussed prevention of each, and sent literature from the state department to each family.

At Christmas time we had talks on "Early Diagnosis of Tuberculosis," and information was given about sales of Christmas seals. The attendance officer talked once to the captains on "How the Health Department Could Help the Attendance Department." The captains reported this talk to their groups.

During health week, in addition to the general assembly health program, each health captain had a health program in his own advisory group, using at least from three to five members. Several of the girls' groups put on successful health

playlets and held health contests throughout the week.

Most of the health captains take pride in making worthwhile talks to their advisory group. Such remarks as "My talk was a flop this morning," "That talk went over big," or "Let's tell the boys they must wear overalls in the shop and wash their hands before they come to class," show they really feel the responsibility. They have become much more concerned about their own health habits and the correction of their defects, as they are ashamed to urge the students to wash their teeth and not have their own in spotless condition.

The health captains are also considered health officers, and they send many cases to the health department that need the nurse's attention, such as neglected injuries, which may cause infection, or continual complaints of illness. Three heart cases and one tuberculosis case have been referred to the nurse by these students interested in the health of their group. As health officers, they report the violation of safety regulations, and insanitary washroom conditions; also any quarantine signs that appear in their neighborhood. They make announcements concerning health work in the city, such as baby clinics, home nursing classes and fresh air camps.

The director of the health department feels that this plan is largely responsible for a health consciousness that is awakening throughout the Hammond Technical High School. We are lowering our high percentage of defects and hope to arouse a lasting interest in healthful living which will carry throughout school life and into the business world.

FAYE NIXON, R.N.,
School Nurse,
Goshen High School,
Goshen, Ind.

KING ARTHUR POSTURE PLAY

(Adapted for use in the high school.)

To be read by Arthur before the curtain rises.

ALMOST every boy and girl has heard the story of the way Arthur became king of England—how the king was to be chosen from all the land by pulling Excalibur from its sheath of rock! Thousands of men tried and tried to accomplish this but none save Arthur could accomplish it.

Do you suppose if he had slumped and had round shoulders and a weak curved back he could have pulled the sword from its resting place so easily? Of course not! He was proud and held his head straight and high, his shoulders were back, his chest was out, his back was straight and he walked and carried his body with ease and grace. Of course his feet pointed straight ahead toward the place he wished to go.

In order to improve our posture let us all imagine we are Arthur or members of Arthur's court of good posture. If we are Arthur, we are the one man in the kingdom who can draw Excalibur from its sheath and we are to be proud kings upon whom every one gazes with awe and respect.

(Curtain rises upon Arthur seated on the throne; the Queen is beside him and a young maiden is seated at their feet. Six knights are standing, three on each side of the throne. The audience or the remainder of the class is the court.)

ARTHUR: May I present to the court assembled Sir Lancelot of the Knights of the Round Table?

LANCELOT:
It little profits that an idle knight
Walks not straight with feet ahead.
I am become Sir Lancelot,
Much have I seen and known;
Yet none within this realm
Can win great honor and renown
Without his separate king, Good Posture.

ARTHUR: May I present Sir Tristram.

TRISTRAM:
King Arthur's knight
Was fair and bright;
The secret is a stunt.
His weight, alack, was never back,
For he carried it toward the front.

Weight before feet
Is quite a treat
That we all like to see.
Weight in the rear,
We greatly fear,
Is a calamity.

ARTHUR: May I present Sir Belvidere.

BELVIDERE:
'Tis fine to see a good Count three,
Not all of us possess it.
But if we try and try again,
We surely cannot miss it.
At first the knees may flexed be,
'Way forward you will lean.
So brace your legs and let them go
And find the golden mien.

ARTHUR: May I present Sir Geraint.

GERAINT:
I am Sir Geraint, a knight of old,
Better known as Count IV bold.
Pull in your waist and down your hips,
And if this you perform without any slips,
You too may join our Healthy Crusade
And really be of very great aid.

ARTHUR: May I present Sir Galahad.

GALAHAD:
I am the good Knight, Sir Galahad;
Just see how my shirt front expands.
Every button is straining its utmost
In response to such forceful demands.

There is plenty of room now for deep breaths;
My shoulders are well back in line;
My clothes really fit me much better.
Do you carry your chest out like mine?

ARTHUR: May I present Sir Percival.

PERCIVAL:
Arthur's knight should always try
To hold his fine, proud head up high.
He walks around and wears a grin;
His head is up, his chin is in.

ARTHUR: At my feet is a fair maiden who at the end of this royal posture assembly will be presented to the knight with the best posture.

LANCELOT:
O, we are young Sir Healthys come out of the West;
Through all the land our posture is best,
And, save our good counts, we weapons have none.

TRISTRAM:
We stride all unarmed and we stride all alone.
Now this is the secret if you wish to hear
Why we gallant Sir Healthys do handsome appear.

BELVIDERE:
Our feet straight ahead, our chins held up high,
Our chests away out, a proud look in our eye.

GERAINT:
With never a thought of a pain or an ache
We march right along and great strides do we make.

GALAHAD:
So stately in form our backs not alilt,
Pulling in on Count IV, a good pelvic tilt,—

PERCIVAL:
Our weight a bit forward, not back on our heel;
It is very apparent how well we must feel.

ALL SIX KNIGHTS:
And now our good friends we have given the cue,
To become a Sir Healthy depends upon you.

ARTHUR: In the eyes of the Queen and myself, and I hope the Court, Sir Lancelot *(or any other knight who may have the best posture)* is the happy knight to whom I now present this lady fair. *(The knight steps forward and kneels before the king. King places his hand on the knight's shoulder and the knight then stands.)* Sir Lancelot, Knight of Good Posture, as a court of good posture we entrust this fair maiden to you. We expect you to carry on the ideals through which you have won so fair a bride. *(Knight then kisses lady's hand.)*

[*Curtain*]

NEW HEALTH BOOKS AND TEACHERS' MATERIALS

ONE of the outstanding contributions to the literature of health education during the year has been the report of the five-year health demonstration in Fargo, N. D. The Commonwealth Fund lent to the city of Fargo a well trained staff of health workers to introduce a program of interrelated health activities and it financed this work until the community was ready to absorb it and pay the cost itself. The bold and successful pioneering in this field that aroused the community to provide a better health service was described in Parts I, II and III of the report, each being published separately.

Part IV of this report, "Teaching Health in Fargo,"[1] is one of the best contributions to the literature of health teaching that has appeared since the movement started. Miss Brown introduced health training into the public and parochial schools with unusual tact, basing her procedure on the best modern individual and social psychology.

The aim of the school health program was "to institute for every child a personal health program which would enable him to reach and hold the highest level of physical health of which he was individually capable, to develop the public health program to a point where this became possible, and to give the child the facts necessary to make both programs self-perpetuating."

As a health supervisor Miss Brown was not hampered by a course of study that said: "This month teach milk," when the children were getting all the milk they needed. Health routines—the continuous observation of the individual child, a health habit record, health inspection, taking of height and weight, relating health behavior to growth, serving milk at school—were the beginning and end of practice. Each teacher guided by such procedures was at liberty to teach health in her own way. Emphasis was placed on repetition in securing formation of health habits, but there was a realization that this could not be accomplished "by rubbing it in." There must be an appeal to new interests as the child went on through school.

It is impossible to give any adequate summary of this important book. It should be read and studied. One of the things that impressed the reviewer was the fact that the school system was not revolutionized in Fargo by the introduction of vital teaching in health. The teachers developed a health consciousness. Hygiene began to appeal to them as a wholesome way of living rather than as a mere collection of facts to be learned from a book. There was good teaching before the health demonstration began in Fargo. It was continued, and in addition the teachers began to realize the importance of health behavior and found hitherto unknown ways of incidentally and directly relating their instruction to healthful living.

The reviewer would like to suggest that classes in health education in teacher-training institutions make the complete Fargo report the basis of their course. This report is not only sound theoretically but is the story of a successful adventure in real living.

A BOOK with a title of "Consecratio Medici"[2] would not attract the ordinary teacher. He would rather expect to find in it dry technical papers, and unless he is trained in medicine he will find some of them uninteresting.

However, there was one essay in this volume that was so inspiring to the reader that he read it twice and also a third time to members of his own family. It is entitled "William Osler, the Man." It is the story of an unusual personality. There is a suggestion in his life of what the teacher of health ought to be today. It is possible to teach boys and girls physiology and hygiene in such a way that it becomes gruesome and repellent or to make it wholesome and inspiring.

Osler was a great teacher of medicine because he was a great personality. He had about him an air of gaiety, an atmosphere that lifted the invalid out of his ills, and a rich emotional nature in which sympathy and insight made him both a great physician and a great teacher.

The last essay in the book, "Emancipators," is on Lincoln and Lister and is well worth reading.

OUR emotional lives are much deeper than our intellectual selves. Dr. Lazell has for the argument of his new book, "The Anatomy of Emotion,"[3] the principle that love and fear are the two great emotions. Love is the builder of our ideals. It is the great constructive force. Fear is a destructive emotion that tends to drag men down to lower levels. Dr. Lazell has had a broad experience in dealing with mental troubles and in reconstructing human lives.

Some of the chapters, such as "The Psychology of Getting On with Others" and "The Psychology of Success," would be especially worth while for teachers.

THE delightful little volume, "An Hour on Health,"[4] is just the convenient size to slip into your pocket or bag. You will find it a rare combination of instruction and recreation. In the first chapter you are met by the challenging question: "How Long Will You Live?" Naturally you will want that question answered. You will chuckle over the many humorous sayings and over the sword thrusts that Dr. Fishbein gives to exploded theories. Although some of the chapters deal with formal topics, such as sleep and digestion, under the author's skilful pen they have force, since many new facts are presented in a pleasing way. High school and college students could read this book with profit and enjoyment.

THE story of preventive medicine goes back to a very early time, but as a science it is scarcely seventy-five years old. Dr. Bolduan, director of the bureau of health education of the New York City Department of Health, starts his new book, "Public Health and Hygiene"[5] with quotations from the old testament, showing the measures of a preventive kind taken by the Hebrews before there was a vestige of scientific knowledge. The first fifty pages are especially concerned with the background of public health. The remainder of the text is devoted to communicable disease and community hygiene. This volume is intended as a student's manual and could be used successfully in high schools and colleges.

1. By Maud A. Brown. Pp. 142. The Commonwealth Fund Division of Publications, New York, 1929.

2. Consecratio Medici and Others Papers. By Harvey Cushing. Little, Brown & Co., Boston, 1928.

3. By Edward Lazell, M.D. Pp. 267. The Century Company, 1929.

4. By Morris Fishbein, M.D. Pp. 158. Lippincott, Philadelphia.

5. By Charles Frederick Bolduan. Pp. 312. W. B. Saunders Company, Philadelphia, 1929.

New Books *on* Health

Reviewed by
Morris Fishbein, M.D.

MARRIAGE AND THE STATE

By Mary E. Richmond and Fred S. Hall. Pp. 395. Price, $2.50. Russell Sage Foundation, New York, 1929.

AS A SECOND study in their consideration of the marriage problem in this country, the authors, who are working under grants from the Russell Sage Foundation, give particular attention to questions of licensure in relationship to marriage. They begin with a study of certain towns in this country that have become especially notorious as marriage mills, showing how marriages are exploited in these places for financial profit. Then comes a consideration of youthful and child marriages, hasty marriages and clandestine marriages. Those who are horrified by the facts in Katherine Mayo's book "Mother India" will find that in this country the situation is equally as serious in some places. One of the chief problems in this country is the fact that almost any one can perform a marriage, from a justice of the peace or a mayor to a high church official, and that in none of these instances is there any adequate control in the form of determining physical, social or economic qualifications for the marriage state. The authors feel that state supervision of some sort is necessary, that the common law marriage should be abolished, and that provision should be made for previous notification and similar controls.

SUNRAYS AND HEALTH

By Ronald Millar, in collaboration with Dr. E. E. Free. Pp. 124. Price, $1.50. Robert M. McBride and Co., 1929.

FOR those who have been looking for a fairly reliable guide on the use of ultraviolet and of sunlight both for the prevention and the treatment of disease there is now available this easily readable and almost perfectly accurate little book. The only real folly that it contains is the suggestion by Hewitt that it is possible to measure an overdose of ultraviolet rays by an increase of two beats per minute in the rate of the heart.

The authors describe the growth of the use of ultraviolet, the different types of apparatus that are sold for administering it, as well as the use of direct sunlight and that coming through special glass. They provide the scientific pronouncements and statements of various official bodies and they recognize the experimental state of much of the knowledge in this field. The book is recommended to the general reader who is especially interested in what ultraviolet can do for him, provided his physician and the articles in HYGEIA have not already sufficiently enlightened him.

A WATER PROGRAM FOR CAMPS

By Thomas K. Cureton, Jr. Pp. 162. P. Blakiston's Son & Co., Philadelphia, 1929.

THE summer camp movement has been extremely rapid. In the development of these camps, swimming, boating, canoeing and other water sports are among the most important of the activities. The pamphlet by Mr. Cureton is a safe and complete guide to the organization of such activities and to securing from them a maximum amount of good for the boys and girls who are fortunate enough to have access to good camps. The work contains an excellent bibliography and, through acknowledgment of replies to questionnaires, a good directory of camps and camp personnel.

WATCHFUL ELDERS

By Rev. Kilian J. Hennrich, O.M. Cap., M.A. Pp. 60. Price, 40 cents. Bruce Publishing Co., Milwaukee, Wis.

THIS booklet has been prepared by the director general of the Catholic Boys' Brigade of the United States. It approaches the problem of sex education from the religious point of view and emphasizes constantly the necessity of dependence on spiritual powers for maintaining purity. Thus it is urged that as long as a child can be kept ignorant about sex matters he should not be instructed regarding them, but parents are urged to inform their children sufficiently early to prevent their receiving the information from wrong sources. In other words, it urges individualization by the parents, which is a highly desirable point of view. The book is opposed to public sex instruction in school or elsewhere. The whole tendency of this volume, however, is to postpone knowledge of sex as long as possible and to conceal rather than to reveal.

THE HUMAN MECHANISM

By Theodore Hough and William T. Sedgwick. Second Revised Edition by J. A. Waddell, M.D. Pp. 691. Price, $3.00. Ginn and Company, Boston, 1929.

THIS well known textbook presents in five parts a great deal of fundamental knowledge concerning the human body. The sections include physiology, hygiene and sanitation, personal hygiene, domestic hygiene and sanitation, and public hygiene and sanitation. Obviously it is possible to touch only more important matters without embarking in technology, proof or details. The analogy of the human body with a machine is made throughout, an analogy which bids fair to be a bugbear to medicine today, since the attempts to organize and mechanize medical practice are based on the conception that all human bodies are machines and may be handled en masse as machines are. The facts of anatomy are presented seriatim without artistry or embroidery and merely as facts. There is no attempt to refer to contributors to the advancement of knowledge either in bibliographic supplements or in historical notes.

The section on the effects of the mind on the body is to be commended for its saneness and its succinct disposal of Christian science and other faith healing doctrines. The material concerning coffee is conservative and scientific, as is that concerning tobacco. On the subject of alcohol the scientific material is sound but social propaganda probably has little place in a textbook of hygiene and the authors conclude their section with this direct statement: "The only absolutely safe attitude toward alcoholic drinks is that of total abstinence from their use as beverages." A great section of the work is devoted to a mixture of superstition and science concerning colds, a subject about which unfortunately little that is practical is known.

In general this book ranks well up with the best that are available in the particular field it is planned to cover. Were it written a little more attractively it might be recommended for the general reader as well as for purposes of textbook usage in high schools and colleges. The facts are provided but facts alone may be exceedingly dull.

Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Brain Fever

To the Editor:—What do we have nowadays that doctors used to diagnose as brain fever?

M. A., Indiana.

Answer.—The term "brain fever" has been applied to a number of different conditions, most frequently probably to meningitis; that is, inflammation of the membranes that cover the brain and spinal cord.

Preservative for Fruit Laxative

To the Editor:—Kindly tell me what preservative can be put into a fruit laxative so that it will keep. I have made a laxative out of pure dried fruit—figs, dates, raisins, prunes and a little senna ground up together. This seems to agree with all the family and we are sure that it does not contain drugs of any kind.

B. B., Colorado.

Answer.—It ought not to be necessary to add preservative to a fruit laxative, it being better to make up such a quantity as would be disposed of by use before it had begun to spoil.

It would be quite safe, however, to add to the mixture benzoate of soda in the proportion of one fourth of one per cent by weight. This should be thoroughly incorporated into the mixture of dried fruit when it is made.

Calluses on Soles of Feet

To the Editor:—What causes calluses on the soles of the feet? What can be done for them? I am often in bed for weeks at a time and mine grow faster and become harder. I often hear that they are caused by pressure, but that is removed when one is in bed. For two years I have had fallen arches as a result of arthritis and long illness.

R. A. A., Maryland.

Answer.—Calluses are primarily protective measures. They develop in areas in which the skin is gradually subjected to unusual pressure. If they did not develop holes would be worn in the skin, for as not infrequently occurs in spots where there is excessive rubbing blisters develop before the skin has time to harden.

The protective callus eventually becomes excessive and exerts pressure on the sensitive nerves beneath, causing pain and disability. The treatment consists in removing the necessity for extra pressure. This may be done by correcting existing deformities and by transferring the weight to other portions of the feet by means of felt pads and appliances. Removal of the callosities themselves by soaking and cutting is an essential part in relieving excess pressure.

The presence of arthritis complicates the picture, as it frequently leaves the smaller toes retracted and retired from active use in walking, thus exposing the bones forming the ball to continued abuse. Skilled care by an orthopedic surgeon will help solve the therapeutic problem.

Cleft Palate

To the Editor:—Please give me some encouragement, if there is any, on the subject of cleft palate. It has appeared in one child in three consecutive generations of a family; the first case was in a girl, the fifteenth child in the family. She married and had seven children, none of whom were afflicted, but it appeared in the seventh child in her brother's family. This child grew up but never married; however the deformity appeared in the second child of her sister's family. Two young women in this generation are contemplating marriage, but the thought of this affliction appearing in their children hangs over them like a cloud. In each of the foregoing cases, the mother was in a run-down condition while carrying the child; had that anything to do with the case? Is there any way it can be avoided? C. L. H., Illinois.

Answer.—There is a distinct tendency in some families toward the inheritance of a cleft palate, although it often shows an irregular course as in this case. There is nothing that one can do to prevent the possibility of cleft palate but it occurs so seldom that it should not deter one from marriage and child bearing.

By modern methods most cases of cleft palate can be corrected by a skilful surgical operation; this should, whenever possible, be done early in life. The rundown condition of the mother during pregnancy probably had no effect on the production of cleft palate.

Impetigo

To the Editor:—Is the immediate cause of impetigo uncleanliness? Is there a law concerning sanitation in barber shops?

E. S., South Dakota.

Annswer.—Impetigo is a pus infection of the skin caused by pus germs, often from another case of impetigo. A few states and communities have enacted laws relative to cleanliness in barber shops.

"Phenoleptol" in Epilepsy

To the Editor:—I have a sister, 14 years of age, who has shown slight signs of epilepsy since she was 8 years old. These spells are becoming more frequent and more severe. She has been taking the Phenoleptol treatment for the last six months, this being commenced by a physician in Oregon. Should she continue these treatments, as we see no marked improvement?

R. A., Oregon.

Answer.—"Phenoleptol" depends for its action on phenobarbital. It would be much better to have phenobarbital, which is an officiai preparation, prescribed by a competent physician. This drug, like the bromides, often lessens the frequency and severity of the seizures in epilepsy but does not cure.

Foods

To the Editor:—From several sources I have heard that milk is a mucus-forming food and hence is many times undesirable, especially for persons inclined to be troubled with catarrh. What scientific evidence supports or disproves this statement? I have heard a dietitian say that proteins and starches should not be eaten at the same meal because the one requires an acid stomach secretion for digestion and the other requires an alkali secretion for digestion. What is the evidence on this? Is it possible that riding in an open automobile would cause or aggravate throat and ear troubles, such as abscesses? H. S. B., California.

Answer.—There is no basis for the statement that milk is a mucus-forming food. It sounds like the dictum of some organization that is promoting the sale of foods other than milk.

Equally without foundation is the assertion that proteins and starches should not be eaten at the same meal. Throughout the ages persons have been eating such foods at the same meal with no bad results.

Riding in an open car might aggravate throat trouble if there was much dust or if one became chilled.

Thyroid Gland

To the Editor:—I have thyroid trouble and have been taking thyroid tablets but they make me thinner than ever and I was already underweight when I started taking them. Isn't there any other way to cure thyroid trouble? I read last spring that an Austrian physician had discovered a new way to put life into the glands. This method was to cut into the flesh and paint the cut with phenol. I wonder if this kind of an operation would cure me of thyroid trouble and if so what it would cost. What sections of the country are the best for sufferers from thyroid trouble and what sections are the worst? I forgot to say that my thyroid gland is not active enough.

R. H. B., Michigan.

Answer.—It is unwise ever to take a thyroid preparation except on the advice of a competent physician.

We have no knowledge of treatment "by which new life could be put into the glands by the method of cutting into the flesh and painting the cut with phenol."

Many thyroid troubles can be relieved by surgical removal of all or part of the gland.

As to climate or location in relation to thyroid, in those regions in which iodine is abundant, as near the sea coast, the number of cases of goiter that develop are much less than in the so-called goitrous districts. After goiter has developed, however, change to such a locality is of doubtful value.

Ptosis of the Stomach

To the Editor:—I have a ptosis condition of the stomach and kidney. I am advised to wear a supporting corset of some kind. I have been considering the Spencer corset but find it too expensive. Is there any other support or corset made that is equally as good for less money?

M. A., Indiana.

Answer.—The condition of ptosis is not regarded as nearly so important as was formerly the case. Many persons go through life with a considerable degree of ptosis of the organs and never know it. There is a wide latitude of normality in the position of stomach, intestines and other abdominal organs. If a support is really needed, it should be ordered by a competent physician and adjusted by him in such a way that it may be worn with entire comfort, at the same time retaining the misplaced organs in the best possible position.

Psyllium Seed

To the Editor:—What is the value of the seed known as plantago psyllium? F. U., New York.

Answer.—Psyllium seed has been accepted by the council on pharmacy and chemistry of the American Medical Association for admission to the list of remedies published in "New and Non-Official Remedies" published by the American Medical Association.

The actions and uses are described as follows: "Psyllium seed, by virtue of its indigestibility and mucilaginous character, acts as a mild laxative." It might be added that psyllium seed acts in much the same way as does flaxseed.

Believes Bread Adulterated

To the Editor:—What are the adulterants that flour mills or bakers put in bread, cake and doughnuts? I am especially curious about the kind of bread variously described as "doughy," "containing glue" or "keeping fresh indefinitely." The many who swallow their food whole do not seem to notice it, but all who chew their food are complaining. They have different complaints, so I will just give my experience with it. I chew my food thoroughly, and after three or four swallows find a tasteless mass in the mouth that no amount of chewing will make palatable. If I swallow much of it the stomach feels full, but the saliva is scant and it becomes difficult to eat enough of anything for proper nourishment. My digestion may not be normal, but there must also be something wrong with the bread. Restaurant griddle cakes and Ward's doughnuts are the worst. Is it excessive gluten? Or perhaps it is an undiscoverable secret.

G. S. W., Pennsylvania.

Answer.—The evidence presented does not necessarily indicate the presence of adulterants in mill products and bakers' supplies and should be accepted only with great hesitancy. We are not aware of any foreign or deleterious substances the addition of which would account for the complaint made.

In our own families, certain bakers' products are accepted as digestible and palatable by some members and not tolerated by others. The housewife does not always have success with her baking, although the ingredients used are always the same. As for restaurant griddle cakes, many persons have their own particular restaurant in which they find them suited best to their tastes and digestion, but it is doubtful if the ingredients used in these are very different from those used in other restaurants. Certainly other factors are concerned in the production of good bread and good pastry as well as the ingredients.

Bread "keeping fresh indefinitely" is more likely a phrase of overemphasis.

Adulteration of food products is taken care of by the federal and state food and drug officials, who employ an active staff for the purpose of detecting food adulterants and for prosecuting the offenders. Definitions and standards for bread have been established in Food Inspection Decision No. 188. The ingredients used in baked products must conform to the standards and food laws, and if any baker willfully adulterated his products he would soon be forced out of business.

Aspirins

To the Editor:—Do all aspirins affect the heart; if so, in what way? E. S., South Dakota.

Anwer.—Aspirin is a trade name for the drug acetyl-salicylic acid. Its action is due to the salicyl radical that it contains. This drug sometimes has a depressing effect on the heart and also affects the blood. It ought not to be used, therefore, except on the advice of a physician.

Enlargement of Salivary Glands

To the Editor:—For several years my salivary glands have been swollen to an unusual size. I went lately to several specialists, but they did not know the reason, though one thought it was caused by nervousness. My father has a thyroid deficiency for which he is given thyroid extract. I am of about the right weight for my height and I take part in athletics in college. Ever since I had typhoid fever at the age of 6, I have frequently to expel mucus from my throat. I have had three tonsil operations. When the salivary glands swell to a large size my speech becomes faulty and my tongue seems to be thrust upward and forward. Could this be caused by thyroid trouble?

C. W. B., Florida.

Answer.—It is not possible from mere description to make a diagnosis of the condition present. It may be that the sublingual glands, which secrete saliva, become distended from an accumulation of saliva, a condition not infrequently present in children and known as ranula. If this is the case, the only cure is surgical.

Perspiring Feet

To the Editor:—My feet get sweaty and damp. I have heard that it is not healthy to keep the feet from sweating. Is this correct?

R. H. B., Michigan.

Answer.—The checking of perspiration of the feet by proper means does no harm to the general system.

Sour Stomach and Soreness After Operation

To the Editor:—What treatment is advised for sour stomach? I had an operation for appendicitis two years ago. I am fairly well now except the scar and muscle walls seem to pull. I am still bothered with sour stomach and some indigestion unless I get my daily exercise, and sometimes in spite of my exercise. How do you get rid of sore, sour bowel and tenderness at the point of a former appendectomy?

O. W. W., Kansas.

Answer.—Soreness of the abdominal wall and more or less pain from adhesions of the organs within the abdomen are common sequels to any operation in which the abdomen is opened. Not infrequently it takes as long or a longer period than has elapsed since the operation mentioned in this case for the symptoms to subside.

If the sourness and indigestion are relieved by physical exercise, that is to be advised. As to any dietetic or medicinal treatment, only the physician thoroughly familiar with the conditions present in the case can advise wisely.

Cretinism

To the Editor:—I have a 19 months old baby who is extremely slow in development. I believe it is lack of thyroid and I want to get information concerning the gland to be sure I am having him treated properly.

T. R. E., Kentucky.

Answer.—A lack of secretion of the thyroid gland may be either congenital or acquired in the infant, and is known as cretinism or congenital myxedema. It results in the arrest of bodily growth and of mental development and should be suspected in children who are overweight at birth, although many cases of overweight occur without having such significance.

There is delayed bone development and loss of weight from malnutrition, so that at the age of 2 years, cretins are undersized and underweight. The tongue is large and hangs out of the mouth; the hair may be thin and the skin dry. During the second year, the signs become marked; the face is large and bloated; the lips are puffy and swollen; the wings of the nose are thick; the nose is depressed and flat; the teeth appear late and decay early; the abdomen is swollen; the legs are thick and short and the feet are undeveloped and pudgy. The face is pale and sometimes has a sallow, waxy tint. The fontanels remain open, and there is muscular weakness. There are large pads of fat above the collar bone. The child fails to develop mentally and may lapse into imbecility.

One of the most remarkable phenomena in medicine is the way in which the appearance of such infants changes when suitable preparations of thyroid extract are administered in the proper way. It is necessary to continue the thyroid treatment indefinitely.

Gonorrheal Rheumatism

To the Editor:—I should greatly appreciate the facts concerning gonorrheal rheumatism. Can it be definitely cured and what is considered the best treatment? Is the pain in the joints caused by the direct action of the gonococci which lodge there through the lymphatics, or is it caused from the pains of infection in the urethra or prostate? Does smoking (long after the acute stage of gonorrhea is over) hinder recovery? Will a warm, dry climate with low humidity relieve rheumatism of this cause, as it does some kinds? What is your opinion on the use of vaccine as a treatment?

R. R. P., Washington.

Answer.—Gonorrheal rheumatism is one of the most frequent complications of gonorrhea. In most cases there is recovery but in many the disease continues for a long time. As to its cause, there has been difference of opinion, some authorities believing that the joint trouble is due to the circulation of toxins from the gonorrheal focus and others that there is an actual conveyance of gonococci through the blood stream to the joint. The latter is much the more probable explanation as the organisms have been found in many cases in the tissues of the joint.

Smoking would probably have little influence, but if it should seem at all to aggravate the condition, it should be abandoned.

A warm, dry climate is helpful in most cases of rheumatism, not so much in this form as in the acute articular rheumatism.

Vaccines have been used in the past few years with considerable success. Rest is a most important item of the treatment, with protection of the joint by cotton wool, wool bandages, counterirritation, baking and, in severe cases, surgical operation for the removal of the pus and the correction of the pathologic changes in the joint.

Diet for Baby of Eight Months; Stye

To the Editor:—1. My baby boy, 8 months old, is taking a milk mixture of 4 ounces of milk, 4 ounces of water and 2 teaspoonfuls of Dextri-Maltose No. 1, every three hours; also some cereal and spinach. Is this diet sufficient? How old should a child be before he can take whole milk and does he need the Dextri-Maltose now? 2. My baby also has a stye on one eye. What would be the cause of this?

J. M. G., Iowa.

Answer.—1. At the age of 8 months a baby should be able to take whole milk or milk much less diluted than that being given. He should have, in addition, cereals and spinach. He should, of course, have orange juice and some cod liver oil. If he takes whole milk, he does not need any form of sugar.

2. A stye is an infection of one of the glands in the edge of the eyelid. It should be examined by a physician.

Insomnia

To the Editor:—There are several sleepless members in our family, two of whom cannot go to sleep many nights for several hours after going to bed and one wakens early in the morning after he has been asleep for a while. Is there such a thing as learning to sleep? Is there anything you can suggest that will help in such cases, aside from the long standing and time-worn remedies? N. I. B., Illinois.

Answer.—In the first place, there may be mental conflicts in those members of the family who are troubled with insomnia and it is probable that the environment is not a proper one for them to be in. In other words, they should not live in the same house and discuss their complaint in the morning after arising.

Insomnia, under such circumstances, is as a rule simply a bad mental habit; consequently, the important treatment is reeducation, along with proper environment. The emotional element is so much in the foreground in such instances that it should be thoroughly studied and the affected individuals should be made to understand that there are some disturbances between their emotional and their intellectual make-up. The important thing to learn in such instances is relaxation, with the understanding that it is not necessary to have so many hours' sleep.

Thorough relaxation as has been worked out by Dr. Jacobson of the University of Chicago is a more potent factor in the correction of insomnia than is any medicinal preparation.

Beef Broth and Beef Tea

To the Editor:—A question has arisen in my hygiene class regarding the use of beef broth and beef tea. I find conflicting statements regarding the nutritive elements. Are beef juice and beef broth used merely as stimulants? If so, should they be used only when the individual is able to take food following it?

E. L. W., Wisconsin.

Answer.—Beef tea, as often made by putting the beef into water and bringing it at once to a boil, does not contain much of the nutritive matter of the beef, because the protein materials are at once coagulated by the heat and cannot then be dissolved in the water. About all that is obtained in such a beef tea are the salts and the extractive matters in the beef.

The proper way to prepare a beef broth is to place the finely divided (minced or scraped) beef in a vessel and cover it with cold water. Allow this to stand over night or for several hours and then slowly heat it until it simmers. The liquid portion is then poured off without prolonged settling and it will be seen to contain many fine particles. In such a broth much of the protein material, which is very nutritive, is retained.

Surgical Treatment for Pyorrhea

To the Editor:—I should appreciate your opinion on the surgical treatment for pyorrhea. How long has it been used and has it been proved a permanent cure? After the diseased tissue around the teeth has been removed, how near to the original gum line does the new, firm, healthy tissue grow? Does it ever come back to the gum line present just previous to the operation? If the teeth have begun to loosen, will they tighten up?

N. B. R., California.

Answer.—Surgical treatment for pyorrhea has been used more or less extensively for the last twenty years. It is a successful treatment in cases carefully selected.

Many treatments may temporarily effect a cure and others may hold the condition in check, but there is no permanent cure for pyorrhea, except the extraction of the involved teeth.

Surgical treatment is employed to uncover deep pus pockets with the hope that it will make the cleansing of the teeth more easily and definitely accomplished. New gum does not replace that which has been surgically removed; therefore it is used only in sections of the mouth not observed in smiling.

It is deemed practical in cases in which the pockets extend rootwise more than one-third and not more than two-thirds the length of the root. There is some improvement in stability after healing but never a complete return to normality.

Diphtheria Toxin-Antitoxin

To the Editor:—I heard your health talks on diphtheria and I feel as if I have learned a great deal about the disease. I have two children, a girl 13 and a boy 8 years old, and my doctor has advised giving toxin-antitoxin as a preventive for the disease. Does the toxin-antitoxin affect the child in any other way? I have been told it is hard on the heart in later years.

W. S., Illinois.

Answer.—Toxin-antitoxin to prevent diphtheria has been given in literally millions of cases, more than one million in New York state alone. There is no reason in the world to fear future ill effects from this treatment and it is saving the lives of untold numbers of children.

Cancer

To the Editor:—If the medical profession does not know what causes cancer and cannot find the germ, how can it state that the disease is not contagious? We have had a distressing case of cancer in our own home. Please advise us in regard to proper treatment of bedding and clothing that come in contact with the patient.

F. W. F., New York.

Answer.—The basis for the belief that cancer is not contagious lies in the entire absence of convincing evidence that it is so. Persons with cancer have come in most intimate contact with other persons, nurses and attendants, in thousands of cases, yet any proof that cancer is conveyed in that way is lacking. Physicians have even transplanted cancer tissue into their own bodies. The transplants did not continue to grow as cancer.

The discharges, however, from many cases of cancer are ill smelling and offensive and therefore bedding and clothing should be cleaned accordingly. Thorough washing, including boiling of all articles that will not be injured in that way, with prolonged exposure to sunlight in the open air, is recommended; in case articles cannot be washed, dry cleaning can be done.

Preventive of Tooth Decay

To the Editor:—Has there been anything discovered that will keep teeth from decaying?

R. H. B., Michigan.

Answer.—The best preventive of decay of the teeth is dental care. One ought to see a dentist at least every six months.

Fowler's Solution

To the Editor:—Is or is not the use of Fowler's solution (3 drops three times a day) harmful to the kidneys? I have heard conflicting views on this subject and would appreciate being set right.

J. E. B., New York.

Answer.—Fowler's solution, or any other preparation of arsenic, may do harm to the kidneys as well as to other structures in the body. It should not be taken except on the advice and under the direction of a competent physician.

Arthritis and Inflammatory Rheumatism

To the Editor:—Will you please explain the difference between arthritis and inflammatory rheumatism, if any? Are the two diseases generally hereditary? Do both diseases affect the heart?

L. M., Wisconsin.

Answer.—Arthritis means an inflammation of the joint. Inflammatory rheumatism is a frequent cause of inflammation of the joints and this joint inflammation constitutes its chief manifestation. From this definition, as one may readily see, arthritis may be due to rheumatism, but there are other conditions that produce inflammation of the joints; among them are tuberculosis, syphilis, gonorrhea and other infections. Any of these infections may involve the heart. There does seem to be a certain hereditary tendency to rheumatism in some families.

Hay-Fever

To the Editor:—I am a severe sufferer from hay-fever. Within a few days after its inception annually about August 6, asthma develops. It has been declared by all doctors who have observed it as a severe case. Its duration extends over August, September and October and, if several severe frosts have not come by October, it will extend into November. During this time I must seek a climate where it is possible to exist. I am not troubled with asthma at other times of the year. Will you kindly inform me if you have knowledge of the prevalence of the weeds and flowers the pollen of which brings on hay-fever in European countries.

W. L. M., South Dakota.

Answer.—The autumn weeds that produce hay-fever and asthma in North America are unknown in England or in any part of Europe. This was first brought out in 1874 by Wyman and was verified by Blackley in 1880. Since the former date many hay-fever and asthma sufferers have obtained complete relief by visiting England and different parts of Europe.

Neglect— may mean Infection!

"The accidents of childhood are many"

Healthy, active children at play are always getting scratched, bruised or cut. First Aid should always be prompt even for the slightest scratch.

Germs of infection are everywhere and delay gives them their chance. All they need is just a slight break in the skin to be ready for their deadly work.

Be Safe! Apply Hexylresorcinol Solution S. T. 37 at once. Help prevent infection which means pain, sometimes lifelong scars or loss of limb—even life itself.

This great antiseptic kills germs almost instantly on contact yet is non-poisonous to mankind. It is soothing, stainless and odorless.

Highly penetrative, it reaches into the tiny unseen irregularities of the wound where millions of harmful bacteria may be.

Hexylresorcinol, the most powerful non-poisonous antiseptic known to Medical Science, over 70 times as powerful as pure Carbolic Acid, is the active ingredient of Hexylresorcinol Solution S. T. 37.

Get a bottle today at your druggist's. Be ready with First Aid. When a skin accident happens apply freely at once, full strength. Bandage lightly, wet the bandage with the Solution, then call the doctor.

Safe! Hexylresorcinol Solution S. T. 37 is harmless even if swallowed. In fact, diluted with two parts of water it is an antiseptic mouth wash and gargle.

Physicians throughout the country use and recommend this great product of science.

Hexylresorcinol Solution S. T. 37 should be in every home as a safe antiseptic for wounds and as a mouth wash and gargle.

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Gentlemen:

Please send me FREE, trial bottle Hexylresorcinol Solution S. T. 37. (Liquor Hexylresorcinolis, 1-1000)

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Common Sense

A FAMOUS doctor said, "Many of the people who want me to diagnose and treat their ailments are more impressed by some scientific medical apparatus than by plain, common sense advice. And they are more willing to follow orders faithfully if given some special office treatment.

"Recently a man I know well came in looking haggard. I gave him a thorough physical examination while inquiring about his living habits. The diagnosis was clear but the patient a problem. If I had told him the simple truth that what he needed most to get back his health and strength was to slow down, sleep more, and get the proper amount of fresh air and exercise, he would have thought I did not understand the complications which were undermining his health. And if I had sent him a bill for such advice, he would have told his friends that I was a robber and not fit to practice medicine.

"So I gave him a treatment with a scientific apparatus and wrote a simple prescription. At the same time I gave strict orders as to what he should eat and drink, how many hours he might work, how long he should remain in bed, and the amount of time he should devote to outdoor exercise. To make sure that he was following my orders concerning his living habits, I had him report once a week for further observation and treatments. In a few weeks he was well. He will tell you—and he believes it—that I am a great doctor.

"Perhaps someone may say my methods with him were open to criticism. But it was my responsibility to use every means within my power to bring him back to good health. Knowing my patients as I do, I know that many of them will not obey my orders for *correct living habits* if given without special treatment or medicine. More than half of the people who consult me would not have to do so if they would learn and practice important rules of health. They expect me to cure them of physical ailments which they could easily have avoided."

A majority of cases of physical let-down and distress are caused by careless or wilful violation of health rules. Bad eating habits, too little sleep and rest, lack of fresh air and exercise, worry, self-pity are responsible for many cases of bad digestion, headaches, poor circulation, constipation, jumpy nerves, depression and run-down condition.

* * * *

The Metropolitan Life Insurance Company has had a booklet prepared by eminent health experts which tells simply and clearly the fundamental rules of intelligent living habits. A chapter or more is devoted to each one of eleven important rules of health under the headings Sleep and Rest, Fresh Air, Sunlight, Exercise, Cleanliness, Water, Food, Comfortable Clothing, Work and Play, Good Posture and Good Mental Habits.

Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y.
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Gentlemen:—Please mail free, without any obligation on my part, a copy of your booklet, "Health, Happiness and Long Life".

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Rountree Pellagra Cure

To the Editor:—An article in a local newspaper by a W. C. Rountree, M. D., in regard to pellagra reads, in part, as follows: "Pellagra is not a deficiency disease; it is caused by an infection that destroys the normal functions of the digestive process of the intestines. Pellagra is a disease that is acquired through the skin; contact with bare hands with vegetable foliage, such as cabbage, beans and collards, brings about infection." In conclusion the article states that the Rountree Laboratories, after years of study, have been able to compound a pellagra medicine that is a sure relief in almost all cases and a permanent restorer of health to the pellagra sufferer. As this article is contrary to our latest knowledge on pellagra, any information you can give me about the Rountree medicine will be appreciated.

R. H. A., Iowa.

Answer.—So few inquiries about the alleged pellagra cure exploited by W. C. Rountree have been received that we have not yet gone to the expense of analyzing it. The only hint we have as to the composition is an article by Rountree from the *South Texas Medical Record* for June, 1917, on "The Treatment of Pellagra." In this he states: "Zinc-sulpho-carbolate has proved to be a specific in my hands."

Our records show that William C. Rountree was born in 1869 and was graduated by the University of Tennessee College of Medicine in 1895. He was licensed in Texas in 1907 (on the basis of "years of practice"), in New Mexico in 1910, in Oklahoma in 1921, and in Arkansas in 1922—in the latter two states on the basis of reciprocity with Texas. He is not a member of his local medical society or, of course, a fellow of the American Medical Association.

In 1912 Rountree was conducting the "Rountree Sanitarium," a drug and liquor cure affair at Mineral Wells, Texas. From 1914 to 1923, the medical directories show that he was at Fort Worth, Texas, but, in 1924, mail addressed to him at Fort Worth was returned. Within the last two years he exploited his "cure" from Texarkana, Texas, and a correspondent wrote that Rountree also had a "laboratory" at Austin, Texas.

Among the literature sent out to physicians by Rountree is a testimonial purporting to come from a Dr. A. E. Davenport, who was state health commissioner of Oklahoma under Governor Jack Walton. Davenport and Walton were indicted at the time the governor

was impeached following the charge of misappropriation of state funds.

Rountree's assertion in reference to the cause of pellagra is entirely out of accord with the latest knowledge on this subject. It is true that some good authorities still believe there is an infectious agent concerned, but the evidence that pellagra is in large part, if not wholly, a deficiency disease and that the cure resides in proper diet, is conclusive. In our opinion, Rountree's scheme is mail-order quackery.

Diet for Group of Children

To the Editor:—We are feeding a group of 150 children, ranging in age from 2 to 12 years. Can you suggest a satisfactory food list?

M. A. D., Iowa.

Answer.—A food list for such a group of children should include the following: milk, one quart a day as an average; one egg a day; meat, heart and liver included, three or four times a week; canned salmon once a week; ice cream once a week; gelatine desserts two or three times a week; cooked cereals of various sorts daily; fruit, fresh, canned, or dried, twice daily; rice once a week; macaroni once a week; wheat bread (preferably whole wheat), rye, bran or oatmeal; various kinds of vegetables—beans, peas, lentils, corn, hominy, potatoes; one raw vegetable daily, such as lettuce, cabbage, carrot, celery, onions; spinach once a week; tomatoes practically daily.

In this dietary milk takes care of the calcium needs, and the egg and meat, together with the milk, cover the phosphorus and protein requirements. When vegetables, fruits and whole grain cereals are eaten as liberally as indicated, the iron and vitamin needs are covered. A certain source of vitamin C should be planned daily in the form of fresh fruit, canned tomatoes or some raw vegetable.

Psoriasis

To the Editor:—I have psoriasis on my leg. What is the cause? I took x-ray treatments but it came back. I could fill a book with names of patent and home remedies I have used, but the condition still exists. F. F., Illinois.

Answer.—No dependable cure for psoriasis has been discovered, though many experts have given much time and energy to the study of the subject. The x-rays cautiously used are perhaps as good as any remedy, but psoriasis returns in many cases after any treatment.

Delicious~
on a summer's day

Wheatena
served cold with fruit

RECIPE

Use a DEEP saucepan. To 7 cups of actively boiling water . . . a racing, foaming boil . . . add 1 teaspoonful of salt. Shake into this . . . SO SLOWLY THAT BOILING NEVER STOPS . . . one cup of Wheatena. Let boil 2 or more minutes. Pour into small moulds previously dipped in water. Chill thoroughly. Cover with bananas, fresh peaches or other fruits, and serve with milk or cream.

If served as a HOT cereal . . . use 6 cups of water to 1 of Wheatena.

Wheatena is the sun-browned wheat cereal that doctors have recommended for nearly fifty years. It is made from the entire wheat kernel—ripened in sun-drenched fields . . then roasted and toasted to give it a delicious, nut-like flavor.

A great *natural* food . . rich in minerals and vitamins . . packed full of the precious food elements needed for sound, vigorous growth of mind and body.

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"Feeding the Child from Crib to College" is an entirely new kind of book for mothers,—written by one of the most eminent child specialists in America. Only 10c brings you a copy. Please use coupon on right.

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Write for more information!

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Cancer

To the Editor:—Have any new discoveries been made concerning cancer? E. S., South Dakota.

Answer.—Much has been added to our knowledge of cancer within the last few years, the most important item being the tremendous value of early detection and removal of the cancer. Nothing new has been added as to cures, except that x-rays and radium are of great service in treating certain types of cancer.

Molasses as a Source of Iron

To the Editor:—Is taking molasses the best way to obtain iron for the system? What is the best treatment for anemia?

C. V. J., Michigan.

Answer.—Iron is contained in ample amount in many of the foods that are ordinarily eaten, especially in vegetables like spinach and in all red meat. Molasses in reasonable amount is a wholesome article of food. The treatment of anemia depends on the kind of anemia present.

Phosphorus-Containing Foods

To the Editor:—Will you please name some foods that are rich in phosphorus? S. C., Georgia.

Answer.—Among the phosphorus-containing foods, the following are given in a book on "Diet in Health and Disease" by Friedenwald and Ruhräh, a recent edition, the phosphorus content being estimated as phosphorus pentoxide in the total mineral ash:

Fruits, 12-15 per cent (pears, apples, citron, cherries, plums, apricots, oranges, figs).

Berries, 20-13 per cent (gooseberries, currants, huckleberries, strawberries).

Nuts, 43-18 per cent (almonds, coconuts, chestnuts).

Cereals, 54-17 per cent (rice flour, rice wheat flour, buckwheat flour, oatmeal, oatmeal flour, barley meal, barley flour, rye flour, cornmeal, cornmeal flour, rolled oats, macaroni, brown bread, white bread).

Vegetables, 41-10 per cent (black radishes, artichokes, beans, peas, lentils, pumpkins, kohlrabi, cauliflower, asparagus, potato, cabbage, Savoy cabbage, mushrooms, onions, rhubarb, cucumbers, turnips, celery, carrots, sugar beets, radishes, spinach).

Milk, eggs, cheese, 65-26 per cent (egg yolk, eggs, cheese, milk).

Meats and fish, 48-20 per cent (veal, pickerel, pork, beef, oysters, salmon).

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SOMETHING DIFFERENT

New Invention Corrects Cause of Troubles, Nature's Way

Corns, callouses, bunions, Morton's toe, hump foot, weak ankles, fallen arches are almost invariably the result of overstrain and fatigue which forces the bones of the foot into an unnatural position. Nature-Treads gently but surely aid in adjusting the misplaced bones of the foot arches by distributing the body weight to the natural weight bearing portions of the foot—truly Nature's own way. Light, flexible leather and fiber—no metal or hard surfaces. Not arch supports.

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Just slip Nature-Treads in your shoes and walk with a new feeling of comfort and freedom.

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Ask your nearest shoe dealer or send direct to us for illustrated circular and measurement chart (sent free if you send your shoe dealer's name). Clip this ad.

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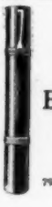

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ESPECIALLY FOR THE DIABETIC

A compact Syringe carrying case assuring COMPLETE Syringe sterilization and a means of sterilizing the flesh.

AT ALL SURGICAL SUPPLY STORES

The GOLDSTEIN MFG. CO., Ltd.

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Why Worry About Such Things?

MRS. DORLAND had been discussing the health of various women of her acquaintance. One suspected kidney trouble, another was obsessed with the fear of cancer, a third was afraid she was tubercular.

Countless people go through life worrying about diseases which they do not have. This is quite unnecessary—so why worry about such things?

By having your family physician give you a thorough health examination every year you may be *sure* of your health.

The best medical opinion favors the periodic health examination for all, whether ill health is suspected or not. Such examinations are not unpleasant and they inspire confidence by the fact that through them trouble is detected at so early a stage that treatment is usually successful. Of course, no health examination is complete without several x-rays. Make an appointment with your physician today.

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Please send me "How X-rays Aid the Public."

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Babies' bodies need sunshine. Kept away from the sun babies grow pale and sickly, like flowers that do not get the light. The sun's rays cure and prevent many babies' diseases, build strong bones and healthy, sturdy bodies. Doctors say give your baby sun baths every day.

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SUN SUIT

lets the healing rays of the sun reach little arms, legs, shoulders, chest and particularly back and spine, but protects vital parts.

Vanta Sun Shirt to match Sun Suits easily pulls on over the head to protect against cool breezes. *Vanta Sun Tam* protects the head.

Vanta Sun Garments, cotton for play and wool (suitable to wear in water) are Vanta Quality, in six brilliant California colors; sizes to 12 years. A doctor's prescription in each Sun Suit tells how to give your baby sun baths.

Vanta Linen Mesh Garments

Physicians suggested Vanta Linen Mesh Garments for babies, so we make them in Shirts, Vests and Union Suits. They absorb perspiration readily, eliminating one cause for colds, easily washed and durable. Of pure imported Irish linen with a mixture of fine lisle thread producing a soft fabric just right for babies at reasonable prices.

FREE TO YOU

Vanta Pattern, also "Baby's Outfit," a book of 64 pages on care and dressing of babies.

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Send free pattern and full instructions for making the new Vanta square-fold, pinless diaper. Also Baby's Outfit book and illustrated catalog, all in plain envelope.

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Diabetes Mellitus

To the Editor:—We should much appreciate your advising us what organ is affected in diabetes mellitus. C. M. D., Washington.

Answer.—Diabetes is a disease of metabolism; that is, a disarrangement of the chemical changes that take place in the body in which the starches and sugars taken in as food are not completely "burned up" in the tissues and in which there is an excess of sugar in the blood.

It has been conclusively demonstrated that this function of the complete metabolism of sugar is due to a hormone, or internal secretion, that is elaborated by certain groups of cells in the pancreas. When this hormone, insulin, is deficient in amount, diabetes occurs.

One of the great medical discoveries of modern times is that of a method by which insulin can be separated from the pancreas of animals and used to make up the deficiency in this secretion that occurs in the human victim of diabetes. Diabetes is primarily a disease or deficiency of the pancreas.

Community Needs Physician

To the Editor:—We need a good doctor in this locality. How can we get one? M. A., Indiana.

Answer.—Perhaps the best way to secure a physician is by advertising in *The Journal* of the American Medical Association or through one of the agencies that advertise in this and in other medical journals. It is undoubtedly becoming more difficult to keep physicians in rural communities, in large part because the residents of these communities have formed the habit of going to the larger cities for all medical service except emergencies. Obviously, a physician cannot live on the income from emergency cases alone.

Scoliosis

To the Editor:—What is scoliosis? What are the causes and what treatments are indicated? H. S., New York.

Answer.—Scoliosis is defined as lateral curvature of the spine. There are usually at least two curves in the scoliotic spine, the main, or original, curve and the compensatory curve in the other direction. It may be due to faulty posture, to weakness of the spinal muscles, to disease of the chest or of the spine itself, to rickets, to inequality in the length of the legs, to sciatica or to other causes. The treatment depends on the conditions present as does the prospect of cure.

Are your children going to camp?

Or to the Shore?

Or to the Mountains?

Remember that summer-time sun, dust and perspiration make frequent shampoos for children imperative, if the scalp is to be kept healthy.

Let them take along this **unique health shampoo.** Lathers and rinses in hard waters, washes out **salty** water; benefits the scalp. No bottles to leak or break! Medically approved.

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At your druggists or send 25c for a 20-shampoo cake
Special prices to camps in dozen lots. Write to
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For those wayward thumbs

This soft, pliable, kindly little binder, fastened gently to baby's active chubby arms, does **just what it is intended to do and no more**—keeps the thumb or finger from quite reaching the mouth, and does not hamper movements or play in any other direction. Children become immediately accustomed to it and it is a wholesome way to ward off the whole train of baby ills—facial deformities, respiratory and throat troubles—that come with the thumb-sucking habit. Help your baby—try a

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Bread is one food that is good for young and old. No one food, not even milk, can supply the body with all the materials needed for growth and vitality. But each of our chief foods—bread, milk, meat, poultry products, fresh fruits and vegetables—taken in suitable combinations, accomplish this result. Diet is chiefly a matter of temperance in eating. Neither too much nor too little of any of its elements should be eaten. White bread is rich in protein and carbohydrates which the body needs and it is so completely digestible that nearly all of these two important contents are assimilated.

Know the FACTS *about Bread*

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As one of the key people who direct the food habits of the nation, you are interested in knowing all "The Facts About Bread and Its Rightful Place in the Diet." Under this title we have published a book of authentic statements by eminent physicians, scientists and educators. We will be glad to send you without charge a copy of this booklet.

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Please send me, without charge, a copy of "The Facts About Bread and Its Rightful Place in the Diet."

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The above statement has been submitted to and approved by a group of disinterested and competent investigators in the field of nutrition, selected by the editor of The Journal of the American Medical Association. These investigators include Professors Graham Lusk, E. V. McCollum and Lafayette B. Mendel.

{ For complete information on nutrition see books written by these authorities }

BREAD *IS* THE STAFF *of* LIFE

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BABY SOUP
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The Badge of Health Foods
In Glass Jars
For Infant Feeding
TO SUPPLEMENT THE MILK DIET
Prescribed by over 5,000 Specialists—

Because they are scientifically prepared under surgical standards of cleanliness and supply the elements needed for sound growth.

Because they cost less than if made at home and save a Mother at least 24 hours a week kitchen time and give her these extra hours to be out of doors with baby.

Because they are easily carried, keep indefinitely when sealed, are ready to use except for diluting and heating and so are equally convenient for feedings at home or traveling.

Clapp's Baby Soup. An appetizing combination of Beef Juice, Vegetables and Cereals.

Clapp's Wheatheart Soup, a combination of Vegetables, Cereals, and the Wheat Germ which supplies Food Iron and VITAMINES A and E abundantly.

Clapp's Strained Vegetables
Spinach, Carrots, Asparagus, String Beans, Peas, Beets, Tomatoes, Prunes and Apricots.

Are all scientifically prepared from carefully selected materials, especially for growing babies and are immensely liked by them.

These are simply wholesome, healthful foods, packed for convenience and economy in 4 oz. glass jars—Soups, also in 14 oz. jars.

Ask Your Doctor
and write us for your Dealer's name
HAROLD H. CLAPP, Inc.
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HOW MOVIES INFLUENCE CHILDREN

Concern as to the pernicious effects of certain types of motion pictures on children in every country has led a French physician to propose that the health section of the League of Nations study the problem and to urge the making of films especially for children. In an article in a French medical magazine quoted by the Paris correspondent of *The Journal* of the American Medical Association, this physician cites a number of cases in which children have shown morbid fear, nightmare, grave modifications of character and even perverse tendencies, the onset of which could be traced to some film depicting crime.

"There is no doubt that the motion picture has become the school of delinquency," he declares, "for the reason that children's natures induce them to regard as heroes the bold perpetrators of the crimes they see displayed and to overlook entirely the compensating effect of the intervention of justice which is presented as a side issue."

A striking instance of the power of motion pictures to impress children is reported by Prof. G. W. Paget of Liverpool University. In an art test given to 800 native Maori children in New Zealand, 36 per cent of the children responded to a call for a picture of a man with a recognizable portrait of Tom Mix. No directions were given as to what kind of man should be drawn, yet in nearly every instance the star was drawn head down, shoulders hunched up, a revolver in each hand and an expression of determination on his face. That this might have been a local effect of a recent showing of a film was disproved by the fact that the drawings were collected from no less than forty-five native schools.

HAZARDS OF THE OFFICE

Office workers would seem to be reasonably safe from accidents, but a surprising number are listed in the *Industrial Hygiene Bulletin.*

Falls on stairs cause the largest percentage of accidents. Polished floor surfaces cause many falls. Falling objects, open file drawers, swinging doors and all manner of substitutes for step-ladders are to blame for many painful injuries.

Electric fans are a special source of danger. Never move a fan without first turning off the current, the *Bulletin* warns. Pricks and cuts from pins, pen points, paper edges and thumb tacks should have an antiseptic applied to them at once. They have been known to develop into severe infections.

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Thumb-Sucking
JUBILEE
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A safe, easy, kindly way. Invaluable if suffering from Eczema or other skin disease. Allows free movement, even considerable bending of elbow. Loose fitting, light, sanitary, cool. Snap fasteners, adjust to 5 different sizes. Handy. At drug or surgical supply houses, or postpaid on receipt of $1. If more convenient, order C.O.D. and pay postman $1.10 on delivery.
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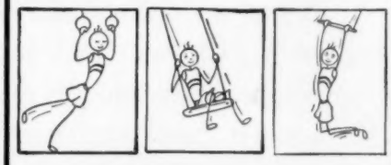
The Busy-Kiddie
TRADE MARK
in September
We are now signing off for the summer, but are doing business at the same old stand.
Glad to hear from you.



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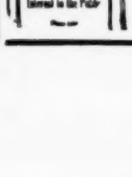

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American Medical Association
535 North Dearborn St., Chicago

WAR GAS DID NOT CAUSE TUBERCULOSIS

In the period just following the World War it was widely believed that the toxic gases used in battle caused a predisposition to tuberculosis or at least a reactivation of old lesions. Fourteen years have now passed since these new and terrifying agents were first used in warfare and physicians have made careful observations of the effects on the surviving victims.

Dr. A. R. Koontz of the Medical Research Division of the Chemical Warfare Service has recently reported that subsequent facts have not justified the earlier fears. In addition to studying the actual victims of gassing, Dr. Koontz has made experiments with laboratory animals that add more evidence to his observations.

Koontz inoculated a large number of animals with virulent tuberculosis germs. Half the animals were then gassed for one hour with a lethal dose of mustard gas and the other half were kept as controls. From six to ten weeks later all the animals were killed and studied. Sixty-four per cent of the animals that had been gassed had pulmonary tuberculosis, while 83 per cent of the controls had pulmonary tuberculosis. Furthermore the tuberculous process was much more extensive in the control animals that developed the disease than in the gassed animals that had it.

According to Koontz, his experiments clearly demonstrate that gassing with mustard gas has an inhibitory effect on the development of pulmonary tuberculosis in the species investigated. Thus it appears that whatever the evils of exposure to the war gases may be, they do not include an increased susceptibility to tuberculosis, observes *The Journal* of the American Medical Association editorially.

TURKEY BEGINS FIRST CHILD WELFARE WORK

Along with the startling reform that is sending the whole Turkish nation to school to learn to use the Latin alphabet, Turkey has entered on a program of child welfare for the first time. At present Turkey has no juvenile courts, no playgrounds and no clubs or societies for training of children. The prime minister has given official approval to the National Child Welfare Association, a private voluntary organization. The association has begun its work by the establishment of a home for babies and young children and by opening a day clinic where mothers may come with their babies for advice, the *World's Children* reports.

In Nason's own Norwegian plants the extracting and refining is done — close to where the cod are caught. In this country every lot of NASON'S Cod Liver Oil is biologically tested.

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Besides the friendly flavor, Nason's Palatable Norwegian Cod Liver Oil is warranted to be rich in the vitamin "A" and "D" potency needed to balance the diet, promote growth, vital energy and immunity to colds.

Nason's palatable cod liver oil complies with the U. S. P. standards for cod liver oil. In addition, it is required to have a content of fat soluble vitamin A, determined by the U. S. P. method, of not less than 800 units per gram, and an antirachitic potency such that 0.01 Gm. per day will produce definite healing (as determined by x-ray photographs), in the leg bones of rachitic rats in eight days when added to a diet lacking in vitamin D, the rats being also deprived of ultraviolet light.

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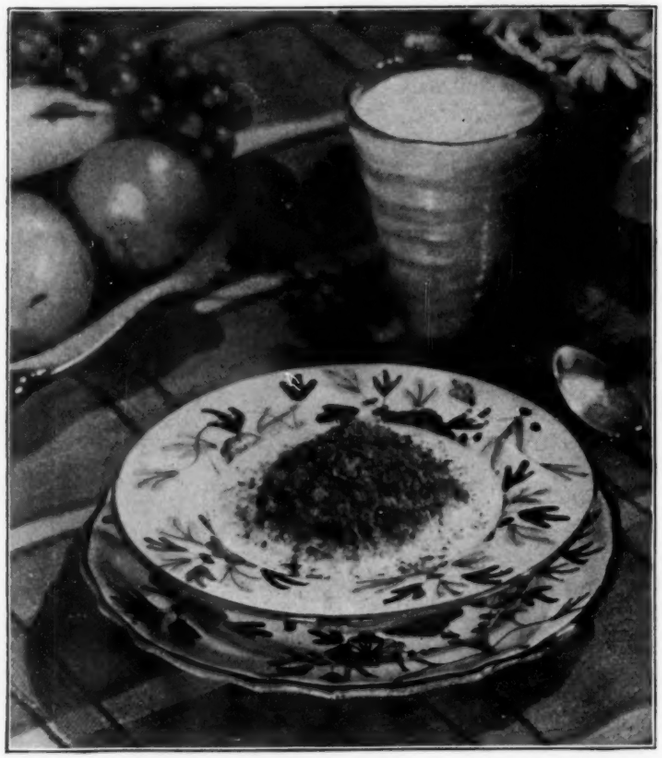

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Parents dare not slight their little boy's nourishment *even for a day!* Today he is eating for tomorrow. He is laying the foundation of health. He needs plenty of lime, iron, vitamins, and roughage.

"ZO", the great vitamin cereal, is so delicious that children gladly eat all you serve them. It is super-rich in the elements little ones need. Food iron for rosy cheeks. Food lime to build good, white teeth, and straight sturdy legs. And Vitamin B that protects health.

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Your local Health Food Center—usually the leading grocer—has "ZO" and all the other foods in the Battle Creek line.

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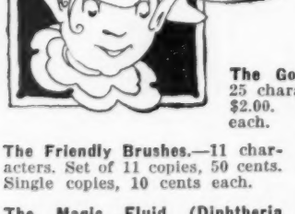
At Battle Creek we maintain a staff of graduate dietitians to advise you on any diet problem. If you will write to Ida Jean Kain, our chief dietitian, she will send you suggestions for your particular diet. "Healthful Living," a most interesting and helpful book written by a leading nutrition expert, will be sent free if you write your name and address on the margin of this ad and send it to us. It describes with recipes many of the foods used in the Battle Creek Diet System. THE BATTLE CREEK FOOD CO., Department 9c, Battle Creek, Michigan.

Ask about Savita, Protose, Malted Nuts, Fig Bran, Vita Wheat, and Bran Biscuit.



HEALTH PLAYS for CHILDREN

Six plays which previously appeared in HYGEIA are available in reprint pamphlet form.

The Good Health Elves.—17 to 25 characters. Set of 17 copies, $2.00. Single copies, 15 cents each.

The Trial of Jimmy Germ.—8 characters. Set of 8 copies, 35 cents. Single copies, 10 cents each.

The Friendly Brushes.—11 characters. Set of 11 copies, 50 cents. Single copies, 10 cents each.

From Danger Valley to Safety Hill.—32 to 45 characters. Single copy, 25 cents.

The Magic Fluid (Diphtheria Antitoxin).—8 characters, with chorus, "king's subjects," etc. Set of 8 copies, 35 cents. Single copies, 10 cents each.

On Board the S. S. Health.—20 characters; time, 10 minutes. Set of 20 copies, $1.00. Single copy, 10 cents.

HYGEIA

535 North Dearborn Street **CHICAGO**

EXERCISE MUST BE GAGED BY PHYSICAL CONDITION

The gospel of exercise has been preached so long that there is a well defined idea in the minds of most persons that exuberant health depends on violent exercise. In the opinion of *The Journal* of the American Medical Association, recommendations for exercise without regard to possible physical limitations need to be carefully considered.

A series of observations among golfers of various ages, different sex and various conditions of health has been made by P. V. Karpovich of the International Y. M. C. A. College at Springfield, Mass. He studied weight, heart rate and blood pressure in more than 100 golfers.

From his experience Dr. Karpovich suggests that a too great loss of weight following exercise with a slow return to normal shows poor physical condition. Lower blood pressure, sleeplessness, fatigue in the morning and lessened appetite after exercise are other indications of poor condition.

Abnormal heart or kidney conditions make severe exercise dangerous, but there is much evidence that mild exercise taken cautiously is beneficial. Persons recovering from an illness naturally have lowered endurance and may collapse after playing a few holes. Usually they walk and play slowly and it is better for them to play not more than thirty minutes on an even course. Karpovich found, however, that some persons with heart trouble were able to play eighteen holes without harm.

In the light of this investigation it seems that the question to golf or not to golf must be answered separately for each player, concludes *The Journal.*

FAMILY COW MAY HELP SPREAD DISEASE

The "family cow" presents an important rural health problem, discussed in the bulletin of the Tennessee department of health. When milk control laws are passed, the family cow is usually not included because of violent protests from owners.

Neighborhood epidemics of typhoid, septic sore throat, dysentery, diphtheria and infantile paralysis have been traced to premises where a family cow was providing milk for the neighbors. Recently an outbreak of seven cases of typhoid fever was reported in three families supplied from one cow. The milker was a carrier of typhoid germs.

FAULTY LIGHTING LEADS TO ACCIDENTS

Approximately 15,000 of the 100,000 blind persons in the United States lost their sight through industrial accidents in mines, factories and shops, Miss Eleanor P. Brown, secretary of the National Society for the Prevention of Blindness said in a recent address before the Virginia Federation of Labor.

Improper lighting is one of the most important factors responsible for industrial accidents. Not only could the number of accidents be materially reduced, but thousands of cases of defective vision could be avoided by remedying faulty illumination in industry. In many shops natural light is cut down one quarter or one half simply because the windows are not washed regularly, Miss Brown declared.

Destructive eye injuries usually force a victim to learn a new trade and there are few jobs for blind men or near-blind men on which a family can be supported decently. To prevent such tragedies among workmen the American Federation of Labor is cooperating with the national blindness prevention organization in a comprehensive program of education. On the basis of progress already made in the United States the society expects that the amount of blindness will be materially reduced within the next generation and some of the principal causes of blindness will be almost eradicated.

PSYCHIATRIC TREATMENT FOR CRIMINALS

Psychiatric treatment for prisoners has been carried out in a German penitentiary for a period of five years with excellent results, according to the Berlin correspondent of *The Journal* of the American Medical Association.

Many difficulties obstructed the execution of the plan. Most of the prisoners are much perturbed in mind. Almost all of them are convinced that a wrong has been done them and find it nearly impossible to adapt themselves to the confinement.

Intensive work with 150 men and fifty women resulted in satisfactory adjustment for most of them. Through consultation with the psychiatrist, they were relieved of a large number of irritating factors so that they became able to keep out of the toils of the law after they were discharged from the prison. The discharged prisoners keep in touch with Dr. Lange and many come back occasionally for treatment when they feel oppressed by their difficulties, while still others write him, thanking him for his help.

"Professor Goodfood"

A most important member of the faculty is Professor Goodfood! Growing girls at college get more out of his courses than they do out of Greek, geometry, and golf. Professor Goodfood's laboratory is aluminum-equipped.

Smith, Sweet Briar, and many other noted women's colleges cook in aluminum utensils. They use aluminum, some of them exclusively, because it does such *good* cooking and—thanks to its imperviousness to food acids—such healthful cooking too.

The *home* kitchen needs these good gifts of aluminum. And the durability and economy of aluminum, and the ease with which it may be kept silvery bright, are added virtues which the thrifty housewife will consider in selecting the *foundation equipment* of her kitchen.

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DO YOU MEASURE UP?

The following physical standards for adults were formulated by the parent-teacher associations of California and reproduced in the California *Health Bulletin:*

Have you—

Normal weight for your height, type and age?

Erect posture, firm muscles, good feet?

Normal vision (properly fitted glasses, if required), normal hearing?

Sound, well-cared-for teeth and healthy gums?

Adequate and accurate information on diet and general hygiene?

A general sense of well-being and enjoyment of life?

Immunity to smallpox and diphtheria?

Do you—

Have a complete yearly physical examination by your physician?

Have an adequate biyearly examination by your dentist?

Have your eyes examined by an oculist every three or five years?

Have corrections made promptly when needed?

Eat a well balanced diet (including leafy vegetables and milk), adequate but not excessive?

Use tea and coffee in moderation, if at all?

Drink six to eight glasses of water daily, most of this between meals?

Have a daily bowel movement without the use of drugs?

Take at least two baths weekly, one daily if possible?

Sleep soundly, not less than seven hours per night?

Take some outdoor exercise daily?

Provide for some recreation daily, in the form of a sport when possible?

Relax with ease and get sufficient rest?

Do your work intelligently without undue fatigue?

Devote some time each week to study of the best ways to preserve the health of yourself and your family?

Consider the maintenance of sound physical and mental health your duty and privilege?

When poisons do accumulate in the body it is the result of a breakdown somewhere in the eliminative machinery, and such breakdowns can't be repaired by swallowing sulphur or swigging sassafras.

As far as the tonic properties of these drugs are concerned, they are nil. The best tonics are given by cows, laid by hens and grown on trees, vines and bushes. When these are taken in liberal amounts, no artificial makeshift is necessary.

—*Texas Outlook.*

HEALTHY PERSONS CARRY SCARLET FEVER GERMS

That scarlet fever germs may be carried in the throats of healthy persons and may be transmitted to susceptible persons who then develop the disease has been an established fact for some time. A series of fourteen cases traced to three healthy carriers, reported by Dr. Ruth Tunnicliff and Dr. T. T. Brooks to *The Journal* of the American Medical Association, add further confirmation to the discovery.

Three outbreaks occurred in the boys' ward of a hospital for crippled children. After several cases had developed cultures were made from the throats of all the attendants in the ward and it was found that one intern and one nurses' aid were carrying the germs that cause scarlet fever in their throats. The germs disappeared from the intern's throat in a few days, but persisted in the nurses' aid.

To test the possibility that the nurses' aid was the source of all the scarlet fever, the girl was removed from duty and no more cases developed for a month. Then another nurses' aid developed the disease and it was found that she was a friend of the first and often visited her room when off duty. Finally it was recommended that the carrier's tonsils be removed. This was done, the scarlet fever streptococci disappeared from her throat and no more scarlet fever occurred.

The other cases reported were in private families. No outside contact could be found, since the children with scarlet fever had not been out of the house or in contact with other children for a week and there had been no visitors. The father in each case was the only one who had been away from home and both were found to have scarlet fever germs in their throats. It seemed certain therefore that the fathers were healthy carriers of scarlet fever to their own children.

BEWARE OF THE ROADSIDE SPRING OR STREAM

Trusting to luck to find water to drink when on a camping trip is to run a foolish risk of exposing the campers to infection, says the bulletin of the New York state department of health.

There is no way to tell by the appearance of water whether it is safe to drink or not. Carry water from home when you take to the road, the department advises. If you are going any great distance replenish your stock in large communities where the water is under supervision, never from the roadside stream or spring.

A 25c tube of Colgate's contains more toothpaste than any other leading brand priced at 25c.

More important — Colgate's cleans better — its penetrating foam washes away decayed impurities in crevices not reached by brushing.

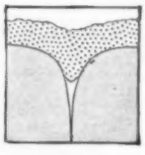
COLGATE'S has become the largest-selling dentifrice in the world because it not only polishes the outer surfaces of the teeth, but more important, because its wonderful penetrating foam washes away the decaying food particles and mucin deposits lodged in the tiny crevices of the teeth, not reached by ordinary brushing.

Recent scientific tests confirm the fact that Colgate's has a greater penetrating* power than any of the leading dentifrices on the market. This means that it gets down into every tiny crevice. There it softens and dislodges the decaying impurities, washing them away in a detergent wave.

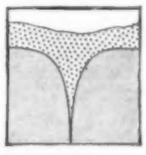
In this foam is carried a fine chalk powder, a polishing material used by dentists as safe, yet effective in keeping teeth white and attractive.

If you have not yet become acquainted with Colgate's, may we send you a generous trial tube and an interesting booklet on the care of the teeth and mouth? Just mail the coupon.

**How Colgate's Cleans Crevices Where Tooth Decay May Start*



Greatly magnified picture of tiny tooth crevice. Note how ordinary, sluggish toothpaste (having high "surface tension") fails to penetrate deep down where the causes of decay lurk.



This diagram shows how Colgate's active foam (having low "surface tension") penetrates deep into the crevice, cleansing it completely where the toothbrush cannot reach.

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NONSPI destroys the odor and diverts the underarm perspiration to parts of the body where there is better evaporation—and need be used on an average of but two nights each week.

NONSPI is an old, tried and proven, dependable preparation—used, endorsed and recommended by physicians and nurses.

More than a million men and women use NONSPI the year around—spring, summer, fall, and winter—to keep their armpits dry and odorless and protect their clothing.

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UPSET EMOTIONS CAUSE UPSET DIGESTIONS

Attacks of indigestion that are often blamed on some article of food are probably due rather to the fact that psychic factors have interfered with the normal course of the digestive process. How strong emotion or fatigue can stimulate or inhibit digestion is described by Dr. Walter C. Alvarez in a recent issue of *The Journal* of the American Medical Association.

Dr. Alvarez tells a story of a young girl who fell out of a mango tree and broke her arm. As the girl lived some distance from a city it was several hours before she could be brought to a physician. With the first few whiffs of the anesthetic she vomited the fruit eaten hours before in the tree, still untouched by digestion.

On trips into the mountains it is often noticed that a person who comes into camp hungry from an exhausting climb and immediately sits down to a hearty meal will occasionally suffer for days afterward with abdominal pain, flatulence and diarrhea. Failures of digestion often occur when food is eaten under psychic strain, as at banquets, at political meetings or in homes overshadowed by illness and death. Dr. Alvarez believes that such upsets are due to the drying up of gastric secretions which accompanies excitement, fatigue or pain.

In view of these observations, which have been made by many physicians during many years, it is suggested that one should not eat when preoccupied, mentally upset or greatly fatigued. The best thing that sufferers from this nervous indigestion can do is to postpone the meal until strong emotion has passed, calm has been restored, and fatigue has lessened.

SLOW CHILD NEEDS SPECIAL CLASSES

Children who are slow in their studies should be put into special classes instead of being left in regular classes to become discouraged in competition with brighter pupils, J. E. W. Wallin of Miami University asserted in a recent article.

Even the slowest child has a right to learn as much as he can in special classes. Out of more than 4,000 deficient children examined in clinics conducted by Dr. Wallin, about 2,000 were 10 years old or older. Had their school systems been efficiently organized, most of these handicapped children would have been examined at 6 or 7 years of age and assigned to classes in which they could make the most of themselves.

VINE RIPENED TOMATOES HAVE MOST VITAMINS

The wide use of ethylene gas for the ripening and coloring of vegetables has raised questions among physicians as to the possible effect of the gas on the vitamin content on such vegetables as tomatoes.

Three Iowa investigators have recently made a comparison of the vitamin content of green, air ripened, ethylene ripened and vine ripened tomatoes. Their experiments showed that the ripened tomatoes contained more vitamin A than green ones, but that the method of ripening made little difference in the quantity. No difference was apparent in the quantity of vitamin B in the various types of tomatoes.

Tomatoes are often prescribed by physicians for their vitamin C content. The results of the Iowa experiments showed that tomatoes ripened on the vine were superior to all the other types for vitamin C, the air ripened and artificially ripened ones being relatively better than green ones.

Commenting on this investigation, which is timely because of the increasing use of artificial ripening, *The Journal* of the American Medical Association recommends that any products used for their vitamin content should be in as near a naturally ripened condition as possible.

PARIS POLICE ATTEMPT TO DIMINISH NOISE

Paris has attacked the noise evil in earnest as a result of numerous protests in health journals calling attention to the pernicious effects of noise on the nerves of the population, says the correspondent of *The Journal* of the American Medical Association.

The prefect of police has begun by seeking to diminish noises at night, which have the most harmful effect because they prevent sleep, especially in children and nervous persons. He has prohibited the blowing of whistles and sirens on boats on the Seine before 6 o'clock in the morning. He has reduced to a minimum the blowing of whistles on locomotives at night.

In connection with night work on buildings, repair of pavements and unloading of merchandise he has ordered that the work must be carried on quietly.

Loud sounding automobile horns have been suppressed and drivers are not allowed to blow their horns on the streets between 11 p. m. and 5:30 a. m. At the same time a competitive contest has been inaugurated among automobile manufacturers in order to obtain a model horn with inoffensive tones.

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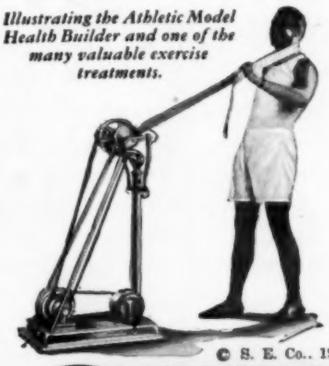

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Since the introduction of Pollen Antigen Lederle, each year has added evidence to the value of this product in the prevention or relief from symptoms of Hay Fever, and each year an increasing number of physicians have familiarized themselves with the Hay Fever problem and are relieving patients of their seasonal attacks.

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may be commenced as late as two weeks before the date of the expected attack. Fifteen graduated doses of an appropriate Antigen are required. Patients usually suffer little inconvenience from the injections, and many are completely protected from Hay Fever attacks.

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